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Observations
ON
THE NATURE AND SYMPTOMS OF CARDIAC INFECTION IN CHILDHOOD.

BY

F. J. POYNTON, M.D., F.R.C.P.LOND.,

PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL; SENIOR PHYSICIAN TO OUT-PATIENTS, THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

III.—RHEUMATIC ENDOCARDITIS.*

I. OF THE MITRAL VALVE.

THE commencement of rheumatic endocarditis of the mitral valve is bound up with the early acute dilatation of the heart, and the symptoms are very few. There need be no pain, and fever is not essential. An increase in the rate of the pulse, some breathlessness and possibly palpitation, if the child is not confined to bed, are suspicious, but these are due to the myocardial weakness rather than to the valvular disease. We have only to picture the minute lesions that constitute an early endocarditis to realize this lack of symptoms, and it is amply borne out clinically by the ease with which a primary cardiac rheumatism can be overlooked. I am nevertheless opposed to any attempt to minimize the importance of valvular disease, for though, no doubt, in former years overmuch attention was paid to it as the agent in cardiac failure, we cannot neglect its extreme value as evidence of organic disease, or forget that, as in mitral stenosis, it may be the predominant cause of the failure of health.

In acute rheumatism mitral endocarditis is extremely frequent—how frequent no one can say, because, as I have already pointed out, it is impossible in some cases to be sure as to whether the condition is one of simple dilatation alone. In fatal cases, however, it is practically invariable, for in 149 out of 150 there was a lesion of this valve.

Two Types of Mitral Endocarditis.

A point of importance is the distinction between the classical mitral incompetence and stenosis. In order to understand this distinction some attention must be given to the morbid processes in the two lesions. Every one is acquainted with the *post-mortem* appearances of the dilated incompetent mitral valve, and with the cicatrized tissues of advanced stenosis; but it is nevertheless my experience that, among students, there is a vague idea that the latter is an advanced stage of mitral incompetence. This, however, is only true in a very restricted sense. The ordinary lesion of mitral incompetence will never give rise to a classical stenosis, for such a result as this is a pathological impossibility. In mitral stenosis, as will be described later in more detail, the entire valve flaps, the ring, and the chordae tendineae are infiltrated by a subacute rheumatic process. I do not deny that between the two extremes there are grades which bridge over these differences, but if we are to understand the history of mitral stenosis we must first recognize this essential distinction in the nature of its development, *that it is a subacute process involving the entire structure of the valve.* This particular form of chronic inflammation is more frequent in the female. The explanation of this sex peculiarity must necessarily be hidden from us until we have some knowledge of the nature of the rheumatic poisons. The occurrence, however, of a process of this kind in [illegible] infection is not in itself remarkable, for the nature of a fibroid phthisis has for many years been thoroughly appreciated and is as unlike an acute broncho-pneumonic tuberculosis as mitral stenosis is unlike an acute carditis. The results produced by these two types of endocarditis are very different, for while mitral incompetence may be of little importance, mitral stenosis constitutes one of the most formidable of cardiac affections. It is so common and its early history is so unpretentious that I am doubtful whether the true gravity of the lesion is even yet sufficiently appreciated. In adult hospitals we have become so familiar with these cases that they are almost in danger of becoming either problems in diagnosis or occasions for the demonstration of auricular fibrillation, while in children's hospitals the symptoms are as a rule so slight that the future of the patients is liable to be forgotten. If, however, we merge these two aspects into one we cannot fail to realize the dangerous tendencies of this form of endocarditis.

A. Mitral Incompetence.

In childhood the course of a case of mitral incompetence depends almost entirely upon the myocardium. If this is severely damaged by an acute carditis the case will run a disastrous course, compensation will never be effective, and invalidism quickly follows. On the other hand, if the myocardium is sound the course is favourable, if the physician and parents have patience and exert much care. Complete recoveries are in my opinion frequent, and this even when the bruit is audible over a wide area, including the back of the chest. In order to realize this such cases must be followed for some years, during which time several interesting facts will be noted. Thus the systolic murmur, which at first was obvious and classical, will become in time indistinguishable from a so-called functional murmur in its behaviour to change of position and cardio-respiratory phenomena. I am very sceptical of the book distinctions between functional and organic bruits, and prefer to rely upon a study of the patient rather than the bruit as the best means in differential diagnosis. Another interesting point is that the time may come when the patient goes away to school with a warning note to advise that he has had rheumatic endocarditis, and we hear later that we have been mistaken, and that there is in reality nothing amiss. Remembering the pathological changes in a mitral endocarditis, there is no reason why the vegetations, just as the rheumatic nodules, should not gradually shrink in the course of cure, and then the slight thickening that is left can have no importance when we bear in mind the contractile nature of the valve ring and the great power of the cardiac muscle to adjust itself to slight deficiencies. The real importance of a mitral systolic murmur may eventually lie in the evidence it affords of

*Articles I and II were published in the JOURNALS of March 2nd and April 13th.

the rheumatic attack, and this is of value, for rheumatism in the child is a disorder very likely to recur.

When mitral regurgitation runs an unsatisfactory course in childhood the symptoms of breathlessness and palpitation are soon apparent. The pulse is rapid and later irregular. The impulse, even if it becomes more forcible than normal, is diffuse and the transverse diameter of the heart enlarged. The systolic murmur is loud and long, conducted to the axilla and audible at the back, and often a bruit develops which is to-and-fro in rhythm. There is a tendency to bronchitis, the liver enlarges, and oedema appears. Eventually a condition strictly comparable to an adult case of severe mitral incompetence results.

It is remarkable how such cases resist remedial treatment, a result due to several factors, particularly weakness of the myocardium, adherent pericardium, and destruction of the tone of the valve ring.

B. *Mitral Stenosis.*

For a thorough understanding of mitral stenosis the early developments should be carefully studied in childhood. This is the more needful because the medical treatment is most unsatisfactory, and I am convinced that no single step in its history should be left unexplored, even if, as it seems to me at present, this only deepens the conviction of our powerlessness.

We are faced by a most insidious form of subacute inflammation the duration of whose progress is often measured not by weeks but by years. In its earliest stages the absence of symptoms may easily lull our fears; in the latest stages, when the systemic blood system has been throttled at its source, we are powerless to do more than ease the suffering. It is a lesion in which the valvular change is the essential factor, for we often find the myocardium remarkably healthy, and feel that if we could only free the ligature round the blood stream the heart would recover.

There is no doubt that this process of contraction may stop, and if this happens before much stenosis has occurred then life will be prolonged, but the lamentable feature is our inability to influence the process by medical treatment. However carefully we treat these cases by rest and medicine the stenosis often develops under our eyes, and we are driven to the second line of defence—that of minimizing by palliative measures the results that will follow.

It has been pointed out that there are cases of mitral endocarditis in which some scarring of the free edges of the flap occurs, thus causing a certain degree of narrowing; but in these cases the stenosis is of pathological rather than clinical interest. I have had one opportunity of observing not only the development of the condition from week to week, but of ascertaining the pathological changes in the valve after death in a case of true mitral stenosis of unusually rapid course.

This was the case of a little girl of 6 years who was under my care for five months in hospital suffering from severe myocarditis. In the first month there was apparently no valvular lesion; then there steadily developed the signs of a stenosis, with the usual thrill and presystolic murmur. The necropsy showed general thickening of the segments of the valve from subacute inflammation, with small areas of necrosis such as are seen in the rheumatic nodule. Had life been prolonged a general and severe contraction must have followed.

In lectures and papers I have several times drawn attention to the association between repeated attacks of chorea and the development of mitral stenosis in childhood. This association is one which I feel certain is of clinical interest, and I illustrate it by three examples out of a number of similar observations.

Example 1.

A. K. A., female, aged 6 years, came under my observation in August, 1907, for an attack of chorea, with multiple arthritis. The attack of arthritis was interesting because the metacarpophalangeal joint of the right great toe resembled a gouty arthritis. An occasional mitral systolic murmur was noticed at that date.

In October, 1907, there was another attack of chorea paralytic in type. In December, 1909, a third attack occurred, and now the first sound at the apex was noted to be short. In May, 1910, there was a fourth attack, and a systolic mitral murmur was audible. In November, 1912, there was a fifth attack, and now a presystolic murmur had developed. In January, 1914, there was a sixth attack, and the condition of the heart was a classical example of mitral stenosis.

Example 2.

C. C. A., female, aged 6 years. She was first under observation in March, 1907, suffering from chorea of seven days' duration; the only other rheumatic manifestation was a mitral systolic murmur.

In September, 1908, after a sore throat and a rheumatic erythema she developed headache and chorea and there was also mitral incompetence. In February, 1910, there was a third attack with active carditis but no evidence of mitral stenosis. In February, 1911, she had an attack of arthritis following a sore throat, but there was no obvious mitral stenosis. In May, 1912, a fourth attack of chorea occurred with fainting attacks, and the usual evidence of early mitral stenosis was obtained.

Example 3.

J. B., a boy, aged 3½ years. He was first under observation in May, 1908, for chorea of five weeks' duration.

In 1909 there was a second attack. In June, 1910, there was a third attack, when mitral regurgitation was first noticed. In January, 1911, there was a fourth attack, and in April a fifth with arthritis. In October a sixth attack commenced and mitral stenosis was first detected. In 1912 and 1913 further attacks developed, and by September, 1914, he had suffered from ten attacks of chorea and there was an obvious mitral stenosis.

These three cases and many others I have notes upon enable us to trace the development of mitral stenosis. It is obviously a very gradual process, taking many months and sometimes some years to become unequivocal, and during its development the child may never complain of cardiac symptoms. The chorea reminds us, however, that the rheumatic infection is active on frequent occasions, and we are led to realize how stealthy may be the progress of the rheumatic infection in the human tissues. Further, these cases lead us to understand clearly how in an adult we may meet with well-marked mitral stenosis and yet obtain no history of rheumatism, for if the heart is primarily affected and there is no chorea an advancing stenosis may occur without any symptom that calls attention to its presence.

Mitral stenosis is, I think, not by any means an easy lesion to diagnose in the early stages, and a knowledge of the history of the child's health in recent years often gives us valuable information. The presystolic thrill is at first very local and accurately limited to the region of the heart beat. A systolic murmur is often audible, but there are cases in which it is never heard although all the cardinal signs of stenosis appear. In others, again, the systolic murmur gradually fades away, but the first sound becomes short and sharp and a presystolic murmur appears. It is easy enough, if the heart is examined just at the time when the systolic murmur is disappearing, to overlook the character of the first sound and pass the heart as sound. The persistent third sound, commonly expressed by Zubb-tut-tut, is well recognized, as also the presystolic, mid-diastolic, and diastolic types of the rumbling murmur.

Attention must be drawn to a to-and-fro murmur, blowing in character, which is not infrequently met with in the mitral disease of childhood. It is very like the to-and-fro murmur heard in adult aortic disease, and does not point to mitral stenosis. Both these murmurs are soft and blowing, and a necropsy will show a widely dilated mitral opening with a large dilated heart and very probably also an adherent pericardium. It is in my opinion a sign of value in mitral incompetence pointing to a severe lesion, and is one often met with in the disastrous cases alluded to under that section.

In the early stages of mitral stenosis symptoms are usually absent, and it is a sound rule in prognosis to look upon the development of definite symptoms in young children as a serious matter. There is, however, one which is of great interest and difficult of explanation. This is tachycardia. Physicians are well acquainted with tachycardia and its danger in the advanced disease of adults, but the same may occur in childhood from the earliest appearance of the stenosis. It is not, however, dependent upon the stenosis, for it may even pre-date it. The following example will illustrate this occurrence.

Example 4.

L. G., a girl aged 5 years, whose father had suffered from rheumatic heart disease, was brought to hospital in March, 1902, suffering from chorea. She lived in a damp house near the Thames, and for four months had become increasingly nervous, until at last chorea developed. The feature of the case was a persistent tachycardia, the pulse varying between 120 and 148 in the minute. The heart was dilated.

She was kept in hospital for four months, and though treated very strictly, the tachycardia persisted until June, when, after

removal of decayed and septic teeth with subsequent administration of the bromides, it disappeared. A systolic murmur at the apex was occasionally noticed when the tachycardia was unusually severe.

Six weeks after leaving the hospital she returned, very excitable and with a recurrence of the tachycardia, but there was no cardiac murmur. A month later some irregularity of action developed, and the impulse of the enlarged heart was very forcible. The thyroid gland was palpable, but there were no other signs of exophthalmic goitre.

In 1906 the condition remained much the same, and there was one attack of chorea. Nervousness and tachycardia were very constant, and the pulse-rate sometimes reached 156 to the minute. The first sound was becoming more abrupt, but no murmur of any kind could be detected. I saw the child again seven years later in 1913, at the age of 16, and found then severe mitral stenosis with tachycardia, cyanosis, and the same remarkable nervousness.

This is an extreme example; far more frequently we meet with cases in which, after a rheumatic attack, the condition has seemed satisfactory, except that the action of the heart has been persistently more rapid than normal, and, except for some shortness of the first sound, no other evidence of actual disease has been apparent. In such cases I have been struck with the frequency with which mitral stenosis eventually develops. This tachycardia is much influenced by emotion; the child does not, as a rule, complain much, but there is a general weakness and sense of exhaustion.

In the adult all physicians are acquainted with severe tachycardia in mitral stenosis, which is sometimes persistent and sometimes paroxysmal, and recognize it as one of the gravest symptoms in the final stages. Of particular interest to me is the tendency for some cases to develop this symptom even before any stenosis is apparent, and often in the early stages when the mechanical difficulties must be small; and I would dwell upon the gravity of this phenomenon as one which tends to complicate the history of the illness with increasing weight as the lesion progresses and, owing to the nervous disturbances so constantly associated, to aggravate the discomfort of the patient. This symptom must not be confused with the rapid action produced in a nervous child by arrival in hospital among strange faces and sounds. These factors will naturally add to the symptom, but the obstinate swiftness of the heart beat in these cases is easily distinguished when the child has been under close observation for some time.

When symptoms develop in childhood, they do so along different lines in different cases. Some show embolic phenomena early, and these are likely to recur, and may end fatally in a cerebral attack. In others bronchitis is the first serious event. In others an acute carditis may entirely alter the outlook, or a malignant endocarditis may supervene. Lastly, in some cases the stenosis proceeds apace, and we have the picture of the disease in its last stages, as it occurs in adult life, and may even see the child lingering on with gangrene of fingers or toes.

II. Aortic and Mitral Disease.

The importance of this combined lesion in childhood has not, I think, attracted the attention it deserves. It is not that I imagine any peculiar mechanical disability results from this combination; on the contrary, it is apparent that the general trend of such cases will be mitral if that lesion is predominant, and aortic if the aortic valve is chiefly damaged. The great feature of interest lies with the infective process rather than with the mechanical disability, for in many cases where both valves are affected we are confronted with a severe type of cardiac rheumatism, and one which may terminate in a malignant or progressive endocarditis in early adult life. Later some figures will be given to illustrate this point. Meantime I would point out that this terminal malignancy is not by any means always the cause of the involvement of the second valve, for the necropsies show, and the former history has proved during life, the existence of these two lesions in the so-called simple phase. The aortic lesion usually develops later than the mitral, and the valve may be damaged during the same illness, or in a recrudescence, or in a later attack. The essential feature in this condition is, in my opinion, the spread of the infection. This places it in position between a simple endocarditis of one valve and a malignant endocarditis involving two valves or spreading to the cardiac chamber.

Several practical points about this combined lesion deserve attention. The commencement of an aortic lesion in a child is very easily missed, for in itself it gives rise to no definite symptoms and requires for its detection a routine and careful examination of the heart. In some cases I have noticed its development coincides with a rise of temperature after the first bout of fever has subsided, which, though not severe in degree, remains persistent for some days or longer. The steps in the development are that a systolic murmur appears in the aortic area and the second sound becomes faint, and then later the diastolic murmur develops. The aortic lesion is the more easily missed because the diastolic murmur in childhood is heard most clearly to the left of the sternum in the third space or behind the sternum itself, or again at its lower end. Students, in my experience, repeatedly miss this physical sign from ignorance of this fact, and also because they are misled by the systolic murmur over the mitral area. It may seem a gross mistake, but it is one easily made, to confuse the diastolic aortic murmur to the left of the sternum with the systolic mitral murmur conducted upwards. The involvement of the two valves by the infection is well explained by their close anatomical relations.

It is my belief that the aortic lesion may be sometimes recovered from, and it is based upon clinical observation and the study of necropsies. I have observed the diastolic murmur disappear and have also seen at necropsies slight damage to the aortic valve which has, during life, given rise to no physical signs. Putting these two observations together, I believe it possible for an aortic valve to heal as effectively as the mitral, though less frequently.

These combined lesions represent by far the majority of cases of aortic regurgitation in early life, and it is not, in my opinion, correct to attribute the systolic mitral murmur to a relative incompetence of the valve secondary to the aortic disease. As I have already stated, the mitral lesion is the earlier, and the result of endocarditis.

Aortic regurgitation is not frequent as a solitary lesion, but it does occur, as experiment proves, for an intravenous injection may produce an endocarditis of this valve alone. In children also we occasionally find aortic regurgitation with no evidence of a mitral lesion.

The practical outcome is that if in the combined lesions the aortic predominates, the case is to all intents and purposes one of aortic regurgitation, unless the mitral lesion has developed into a stenosis. In that event we have another important valvular defect in the combination of aortic regurgitation and mitral stenosis.

Signs and Symptoms.

The physical signs in aortic regurgitation, once established, rapidly develop their characteristics in the young. The pallor, the strongly beating vessels, the large heaving heart, and the collapsing pulse, all appear in due course, and may, as is well known, reach in young adult life an extreme degree.

Breathlessness, pain over the heart, and epistaxis, are frequent, but angina not so frequent as in the adult, for the aorta is seldom severely damaged. Nervousness is a symptom upon which I would lay much emphasis. These children suffer much from it, and may be quite unable to attend school for this reason. No symptom, in my experience, is more often mentioned by the parents.

Compensation is often remarkably effective, and these children may be remarkably active. I have in my notes a case in which such a patient became a first-class cricketer, though, let me add, not with my sanction, for I think it is a very extravagant use of the cardiac reserve to employ it in strenuous games, and even if there is no disaster, nevertheless it must shorten a useful life; that man, however, led a happier life, in my opinion, than one who has been frightened into invalidism because he has some degree of aortic regurgitation. The happy mean must be the obvious line to take, and with the young heart the aim should invariably be to make the life as full and not as empty as possible.

As a rule these children do not die suddenly but succumb to a renewed attack of carditis. Later in life they may die in the same way, or may strain the heart in an entirely improper occupation in life, or develop malignant endocarditis, or, again, die suddenly or suffer from the mitral lesion and its consequences. When the heart fails from a carditis or from general breakdown of compensation,

the signs and symptoms of the aortic lesion become much less obvious and may be entirely overlooked until recovery sets in and the bruit reappears.

Table illustrating the Relation of Aortic and Mitral Disease to Malignant Endocarditis.

No.	Sex.	Rheumatic Attack, Mitral and Aortic Disease.	Death from Malignant Endocarditis.
1	M.	In 9th year	In 10th year.
2	M.	In 10th year	In 13th ,,
3	M.	In 6th, 8th, 10th, and 12th years	In 16th ,,
4	F.	In 12th and 13th years	In 14th ,,
5	F.	In 7th and 20th years	In 21st ,,
6	M.	In 11th, 14th, 17th, and 18th years	In 19th ,,
7	F.	In 12th year	In 16th ,,
8	F.	In 9th and 10th years	In 11th ,,
9	F.	In 12th year	In 16th ,,
10	M.	In 7th year	In 11th ,,
11	F.	In 12th and 15th years	In 17th ,,
12	F.	In 8th, 13th, and 15th years	In 24th ,,
13	F.	In 13th and 17th years	In 27th ,,
14	F.	In 7th year	In 12th ,,

This group strengthens, I think, the view that I hold that aortic and mitral disease is not of importance only because two valves are affected, but because the lesions point to a tendency to spreading activity and the possibility of malignant development.

As already stated, aortic regurgitation as a solitary valvular lesion is exceptional in childhood, and for the purposes of this article sufficient attention has been given to it under the combined lesion just described. Aortic stenosis and tricuspid endocarditis occur in childhood, but they illustrate no special principles and need not detain us.

MALIGNANT ENDOCARDITIS.

Space will not permit any detailed description of this deadly disease in childhood, which resembles in its behaviour the condition in adult life; but I would repeat here my belief that the rheumatic infection is a frequent and important cause, and will very briefly state the reasons.

There is frequently an antecedent history of rheumatism; it may occur together with such active symptoms as arthritis and pericarditis, and these may be overcome although the valvular lesion may run a fatal course. Both simple and malignant endocarditis may occur in the cardiac valves in the same case, and connecting links between simple and malignant endocarditis may be met with in childhood. Experimental inoculation with the rheumatic infection may produce both forms of endocarditis.

I look upon simple endocarditis as evidence of destruction of the micrococci by the tissue resistance, and malignant endocarditis as proof of the failure of that resistance. I cannot accept the view that septic micrococci have a predilection for damaged and sclerotic valvular tissues, but I think it highly probable that in the necrotic areas of vegetations micrococci may remain latent and spring into virulence. How is it that in written answers we find examinees insisting upon the multiple abscesses found in the viscera in malignant endocarditis? The great feature is the usual absence of such abscesses, and the term arterial pyaemia is as a rule quite incorrect.

It need hardly be added that I do not suppose rheumatism to be the only cause of malignant endocarditis, which we all admit may be produced by various infections. Lastly, I venture to think that more attention directed to the supervision of patients with organic heart disease would throw light upon the all-important factors tending to cause this most dangerous condition.

It follows from the above considerations that I recognize three cardinal processes in endocarditis: (1) The simple; (2) the sclerosing; and (3) the malignant.

NEPHROTOMY COMBINED WITH CAESAREAN SECTION IN THE TREATMENT OF ECLAMPSIA WITH SUPPRESSION OF URINE.

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THE number of patients suffering from eclampsia appears to have increased recently, this complication having occurred at Queen Charlotte's Hospital one and a half times more often during 1917 than in the year before the war. Hence the question of its treatment, important at any time, is now the greater.

Before discussing whether transperitoneal incision of the capsule of the kidney may be a useful addition to Caesarean section, it is necessary to consider in what type of eclamptic patient Caesarean section should be performed. Stated briefly, the indications for Caesarean section are the occurrence of fits or the onset of severe toxaemic symptoms in a primigravida with an undilated cervix, especially if little urine is being secreted and if generalized oedema and cyanosis are present. The advantage of Caesarean section in such cases is that no rapid method of delivery *per vaginam* is possible except at the cost of local trauma and shock that exceeds that of laparotomy. If the view be taken that such cases are better left undelivered and treated on general lines, we are faced immediately with the undesirability of infusing fluid into the veins or subcutaneous tissues of an oedematous patient who is frequently already bronchitic, and the equally undesirable practice of giving large doses of morphine to a cyanosed patient. One of the few drugs that is still available in such cases is veratrone, and this, unfortunately, frequently fails. After Caesarean section the eclamptic seizures rapidly improve in the great majority of cases, but in some there is difficulty in eliminating the toxin, owing to more or less marked suppression of urine.

It is usual for eclamptic patients to pass only a diminished quantity of urine for some days after delivery, and this diminution is considerable in quite a large number. The occurrence of acute suppression of urine in toxaemic patients immediately after delivery, although uncommon, is well known, and is frequently fatal. The pathological explanation generally accepted is that the suppression of urine is due to the thrombosis of the intertubular vessels, with consequent necrosis of the renal cortex. This theory seems to rest on the publication of very full and careful *post-mortem* records of certain classical cases.

Bradford and Lawrence (*Journal of Pathology and Bacteriology*, 1898, vol. v, p. 195) recorded the case of a multipara who had practically complete suppression of urine after delivery till her death on the seventh day. There were none of the usual symptoms of acute uraemia—vomiting, delirium, coma, dyspnoea, and amaurosis being absent. *Post mortem* the convoluted tubules were found to be necrotic and the intertubular arteries thrombosed.

Herringham and Griffith (Ibid., 1906, vol. xi, p. 237) gave details of a patient who, from the time of delivery till her death nine days later, passed only ten ounces of urine. The ordinary symptoms of uraemia were absent till the end. *Post mortem* the kidneys showed cortical necrosis and thrombosis of the intertubular vessels.

Lloyd (*Lancet*, 1909, vol. i, p. 156) recorded the case of an eclamptic patient from whom only an ounce and a half of urine was collected from the time of delivery till her death on the eleventh day. There were slight twitchings from the seventh day onwards, but no fits or other symptoms of uraemia. The *post-mortem* description of the kidneys is that together they weighed seventeen ounces. Microscopic examination showed coagulation necrosis of the cortex; the large arterioles were not thrombosed, although the intertubular vessels were, and the intertubular spaces infiltrated with leucocytes.

It is of paramount importance to consider whether this explanation is correct in the majority of cases, as if primary renal thrombosis occurs and is the cause of the suppression, it is in the highest degree unlikely that any surgical interference will save the patient's life once the symptoms are established. There are, however, reasons for doubting if this explanation is correct in all—or any—cases. In 1909 Weber[1] criticized this pathology, and pointed out that "there is nothing in the description of the thrombi to indicate that they were formed several

days before the death of the patient," and suggested that the thrombosis was secondary to inflammatory changes affecting the secreting tissues. The existence of inflammation in all the classical cases is shown by the presence of small cell exudation. A second criticism that may be brought forward is that it is common knowledge that a large number of cases recover which, in the early stages, are clinically identical with the three classical cases. Yet it is difficult to conceive a thrombosis occurring that is sufficiently widespread to cause almost complete anuria and yet allow of recovery. A third and more important point is that after ten days of a condition clinically identical with the account given of the cases already quoted, the simple procedure of incising the capsule of the kidney at once caused free secretion of urine. It is to be noted that the symptoms present in such cases are nearly always those of "latent uraemia" resembling the phenomena observed in obstructive suppression of urine when the ureters are suddenly blocked by a moving calculus.

It remains to consider what is the condition of the kidney during life in eclamptic or toxaemic patients with more or less marked suppression of urine. Cases provisionally grouped under the terms "eclampsia" and "toxaemia" include widely divergent clinical types, and so it is hardly to be expected that the state of the kidney during life will be uniform if a sufficiently large series of cases be taken. To ascertain the state of the kidney during an eclamptic attack in patients with a diminished output of urine, I have palpated the kidney directly through the abdominal incision after performing Caesarean section in eclamptic patients. In every case I have found the organ swollen, tense, and, in some cases, as hard as stone. Whatever the pathology of the condition, increased intracapsular pressure certainly has been present in the cases in question, and this is, in my opinion, a very important factor in causing suppression of urine; it may be the only factor of vital importance in some cases of acute inflammation of a previously healthy kidney. If increased pressure inside the fibrous capsule of the kidney be the cause of the suppression, it may act through alterations in the blood flow or by pressure on the tubules leading towards the ureter. Of the two, the latter seems to be the more probable mode of action.

It would not require great pressure on these tubules to cause suppression of the flow of urine, as it has been shown experimentally that if the ureter is ligatured the pressure of urine in the ureter rises to 60 mm. of mercury in a manometer and then remains stationary, showing that at this pressure either secretion ceases or reabsorption commences. The swelling of the kidney within its fibrous capsule and the intertubular infiltration may cause compression of the collecting tubules leading towards the kidney pelvis and thus prevent the urine reaching the ureter. Thus suppression can theoretically go on for a considerable time, even if the secreting epithelium is still functioning. The suppression of urine in these cases, on this hypothesis, would be "obstructive" in nature, and we should expect to get the symptoms actually met with—namely, those of latent uraemia. One of the cases recorded below seems to lend support to the mechanical hypothesis, for, in a case of post-eclamptic suppression, as soon as the kidney capsule was incised, urine commenced to reach the bladder in reasonably large quantities. Also sections from small pieces of the renal cortex demonstrate the existence of distension of the tubules (see Figs. 1 and 2), and the distension is more marked in the case of the patient with the more complete suppression of urine.

If increased intracapsular tension be the cause of the diminished flow of urine, and if the diminution in the quantity of urine passed is sufficient to cause delay in the excretion of the toxin causing the nephritis, the indication is to relieve the hypertension before degeneration of the renal epithelium takes place and the terminal thrombosis of the intertubular vessels occurs. Caesarean section for eclampsia is one of the few conditions in which this can be done easily, as at this time the operator is faced with (1) acute inflammation of a previously healthy kidney, (2) general toxaemia causing that inflammation, and (3) a laparotomy incision giving easy access to the kidney. Since I satisfied myself that the renal tension is very frequently raised it has become a routine to treat suitable cases by nephrotomy after doing Caesarean section. As such suitable cases are uncommon even in a lying-in hospital, my experience is so far limited to six, but the results as regards immediate free diuresis have been good and uniform, as every patient has passed a large quantity of urine from the time of operation.

The method adopted is as follows: The patient being under ether, Caesarean section is performed through a high abdominal incision instead of the usual one below the umbilicus. One that gives good access is a median incision made so that two-thirds of its length are above the umbilicus and one-third below. The Caesarean operation being finished in the usual way, a large retractor of the Doyen type is inserted and the wound retracted upwards and to the right. The flaccid abdominal wall allows of free retraction. The small intestine being packed over to the left, the peritoneum lateral to the ascending colon is incised for five inches, the colon turned towards the middle line, and the kidney exposed. An incision through the renal capsule is made along its convex border for its whole length, and as it is impossible to limit the incision to the capsule, a superficial portion of the kidney substance is cut through. A small drainage tube is passed through to the skin of the loin, the colon replaced, and the abdomen closed. The only difficulty is that of illumination in so deep a hole in a fat patient; in an easy case the nephrotomy does not add ten minutes to the operation.

The performance of nephrotomy some time after delivery requires separate consideration, as it might be expected that the secreting epithelium would be damaged permanently after, say, a week, and that little improvement would result from simple division of the capsule. That this is not a fact, and that the operation may be followed by the most marked improvement, is shown by the two following cases:

CASE I.

[By permission of Dr. G. F. Blacker.] S. O., who had had one child in 1911, was admitted under Dr. Blacker's care at University College Hospital on March 30th, 1912, being then six months pregnant. For the last week the daily quantity of urine had fallen to 8 oz.; it was solid with albumin, and contained granular casts. Intense general oedema present. Optic discs normal. Labour induced, and a dead oedematous fetus delivered on April 1st. Blood pressure 128 mm. mercury. No improvement occurred, and the oedema became so intense that the swollen upper and lower eyelids met, and no vision was possible. In spite of treatment, only 9½ oz. of urine were passed each day. On April 17th four fits followed by temporary coma occurred. On April 18th nephrotomy was suggested and one kidney capsule was incised (by Mr. Trotter) at 8 p.m.; the kidney did not bulge much through the capsule. In spite of this, 20 oz. of urine were passed the next day and about double that quantity on each subsequent day. The oedema rapidly disappeared and the patient was discharged on May 17th. She walked up to the hospital to see me on July 25th in good general health, and on September 25th was noted as being very well although a little albumin was still present in the urine.

This case was probably one of nephritis aggravated by pregnancy and ending in uraemia; the second is one of true eclamptic toxaemia in which increased kidney tension was noted at the time of the Caesarean section and where, after ten days of almost complete suppression, nephrotomy immediately relieved a condition that appeared to all to be approaching a fatal termination rapidly.

CASE II.

L. B., primigravida, aged 25 years, was examined in the antenatal department at Queen Charlotte's Hospital on March 28th, 1918. There were no pre-eclamptic symptoms and no albuminuria. On April 7th at 3 a.m. she had severe headache and vomited repeatedly; at 6.30 a.m. the first eclamptic fit came on, and eleven more occurred before she was brought to Queen Charlotte's Hospital soon after noon. On admission the report of Miss E. Pfeil, the Resident Medical Officer (from whose notes this abstract is made), was that the patient was convulsed, and consciousness was not regained between the fits. Extreme cyanosis and slight jaundice were present. Blood pressure 160 mm. There were slight oedema of ankles and shifting dullness of the flanks. The physical signs were those of a twenty-four weeks pregnancy, cervix closed, and the fetal heart not heard. On passing a catheter an ounce of dark bloody urine, which became solid on boiling, was obtained. In spite of morphine and an enema ten more fits occurred. At 3 p.m. I removed a dead fetus (six months) by abdominal Caesarean section. There was a considerable amount of ascites. The right kidney was very hard, but owing to the early period of gestation in this case, the incision was too low to allow of nephrotomy without considerably extending the incision upwards, and, as the patient was extremely ill, I did not incise the kidney capsule. Two hours after the end of the operation the patient was conscious, and no more fits occurred.

On April 8th, 9th, and 10th frequent watery evacuations of the bowels were obtained, so it is difficult to state with accuracy if any urine was passed. On April 11th the bowels were not opened for twenty-four hours and all urine was collected with the greatest care; only 2oz. were obtained. For the ten days (April 7th to 17th) though very large quantities of fluid were drunk, the quantity of urine collected in twenty-four hours was never more than 3½ oz. and frequently only a few drachms. During this time she was slightly drowsy but easily awakened, and answered all questions quite rationally. Delirium, twitchings, vomiting, convulsions, and headache were absent. The temperature averaged 99° and never rose above 100°. After the shock of the fits had subsided the pulse-rate averaged 84. The tongue was fairly clean and the breath not foul. She complained only of pain in the eyes, but Mr. Dawnay, who examined the discs on April 16th, found them normal. During the first part of this time the oedema was slight, but on April 17th it had increased; her general condition was getting definitely worse, no improvement in the output of urine had taken place, and a fatal termination within, at most, two days, seemed the only end. At noon, under ether anaesthesia (Miss Russell), I incised the right loin and exposed the kidney. It was dark purple in colour and hard. On incision, the kidney substance bulged slightly through the tense capsule. The capsule was freely opened by a T-shaped cut which penetrated the cortex for about one-third of an inch. A large drainage tube was inserted into the oedematous perinephric tissues and the wound closed rapidly by through-and-through sutures. In the sixteen hours preceding the operation she had passed only 2 oz. of urine; in the next eight hours, besides what came from the loin, 6 oz. were passed by the urethra. On the next day, April 18th, 38 oz. were passed; on April 19th, 37 oz.; on April 20th, 50 oz. During the next week the average amount measured daily was 82 oz. She rapidly improved after the nephrotomy and recovered without further symptoms.

The urine was repeatedly examined by Dr. F. E. Taylor; on April 16th albumin was present up to 0.5 Esbach, but diminished in amount till it was reported as absent on April 23rd and following days. Later a trace reappeared. Neither diacetic acid nor acetone was ever found. The amount of urea on April 13th was 0.5 per cent. and on April 15th 0.7 per cent. Casts were repeatedly searched for, but were absent till the day after the nephrotomy, when blood and leucocytic casts were passed in quantity.

Histology.

Case I, Fig. 1. A section of a minute piece of cortex removed from Case I shows considerable degeneration of the tissues. Some tubules are lined by cells that are clear, greatly swollen, and whose nuclei can no longer be distinguished. Many cells are disintegrating, and the tubules in places are entirely filled by granular material. Many

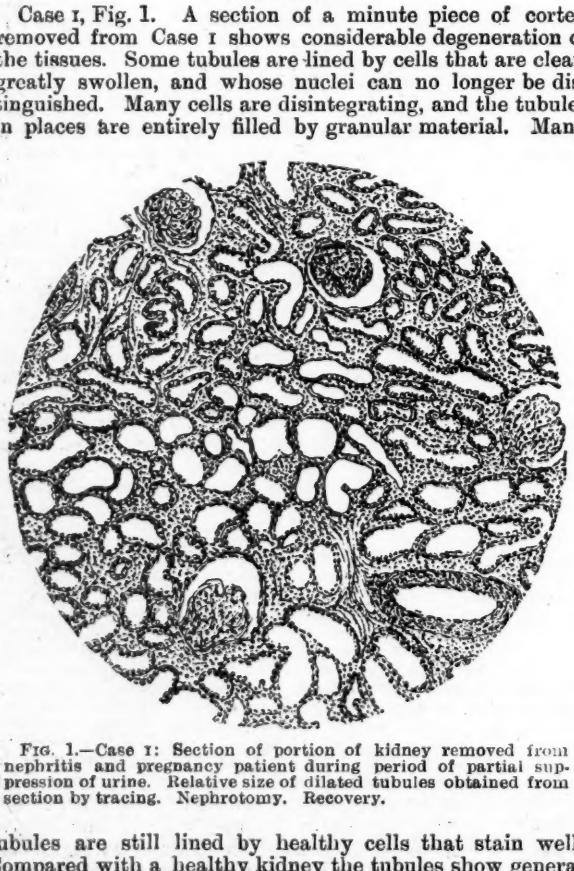

Fig. 1.—Case I: Section of portion of kidney removed from nephritis and pregnancy patient during period of partial suppression of urine. Relative size of dilated tubules obtained from section by tracing. Nephrotomy. Recovery.

tubules are still lined by healthy cells that stain well. Compared with a healthy kidney the tubules show general dilatation, but this is not so advanced as in Case II. The glomeruli show no profound change; the size of the clear space round them is rather greater than normal. There is considerable infiltration of the interstitial tissue. No thrombosis of vessels is to be seen.

Case II, Fig. 2. A small piece of cortex at the angle of the T-shaped incision was removed during the nephrotomy on Case II. Sections show that, as a rule, the cells take the stain well and the nuclei are distinct. Some of the cells are degenerate, but no extensive areas of cloudy swelling or necrosis are present. The connective tissue in places is

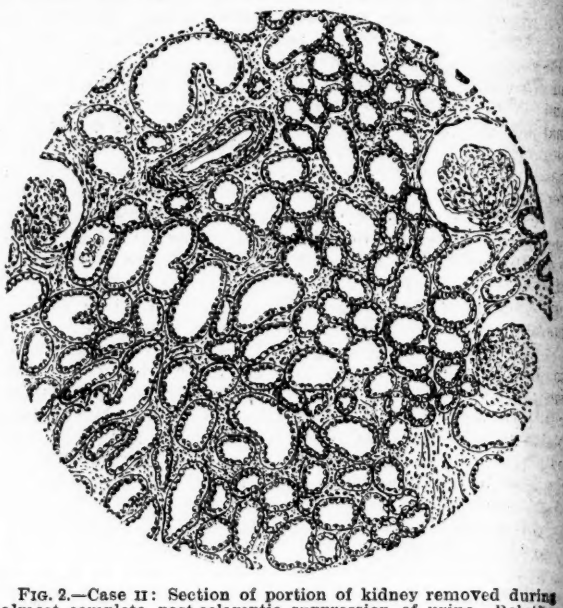

Fig. 2.—Case II: Section of portion of kidney removed during almost complete post-eclamptic suppression of urine. Relative size of dilated tubules obtained from section by tracing. Nephrotomy. Recovery.

increased in amount, contains round cells, and is slightly oedematous. The blood vessels show no marked changes, and no thrombosis is present. The glomerular cells are normal; each glomerulus is surrounded by a considerable clear space. The most marked changes are in the tubules. These are everywhere dilated, so that the section has a more open appearance than usual; this is due to the size of the tubular lumina, and not to the state of the interstitial tissue. Some of the tubules contain blood and others granular débris. Some cells have partly or wholly desquamated, but in most tubules the majority of the cells are healthy looking and stain well.

Conclusions.

Suppression of urine in some cases of pregnancy toxaemia is caused by pressure on the collecting tubules due to increased tension inside the fibrous capsule of the kidney. It can be treated successfully by nephrotomy after symptoms have peristed for many days. As a prophylactic measure nephrotomy may be combined with Caesarean section advantageously in suitable cases.

Reference.
[1] *Lancet*, 1909, vol. i, p. 602.

TINEL'S SIGN IN PERIPHERAL NERVE LESIONS.

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Two aphorisms with regard to peripheral nerve injuries appear to have a wide vogue in England at the present time—namely, (1) that an electrical examination of one kind or another is in itself the best, if not the only criterion of the physiological continuity of a nerve, and (2) that when the reaction of degeneration is found to be present at several examinations conducted within a brief space of time, or when there is much pain in the course or territory of a wounded nerve, it is the duty of the surgeon to explore. The reason commonly given is that "no harm can be done by the operation." But there are two serious objections to early operation—the risk of injuring muscular branches which are intact, and the danger of damaging a nerve trunk in process of natural recovery. Of all the lessons

that this war has taught us in neurology, there is none so striking as that of the tendency to natural recovery in nerves which have been concussed, contused, compressed, lacerated, or even divided, and this recovery may begin to assert itself as late as ten or twelve weeks, or even longer, after the injury. Nerve tissue which is in the act of regeneration or recovery is specially susceptible to mechanical injury, and it is impossible to avoid some degree of this in the investigation of a nerve in a healed gunshot wound. Gosset has recorded a case[1] in which in operating on an ulnar nerve he held the median lightly in his forceps, and it subsequently showed signs of irritation and remained paralysed for two months. The use of periosteum elevators for gouging injured nerves out of dense scar tissue has probably been abandoned, but it is not yet perhaps sufficiently realized how important it is not to lift or touch a nerve with instruments during an operation. Even where the surgeon scrupulously avoids touching the nerve with his instruments, the disturbance of the blood supply, of the sympathetic fibres, and of the nervi nervorum must cause considerable interference with function.

A further justification of the "look and see" as opposed to the "wait and see" policy is offered by the tempting facility for applying naked electrodes to the exposed nerve at or above the site of lesion. This is probably the best way of testing the physiological continuity of a nerve, but it is open to the objection that in order to carry out the procedure one has to operate on the nerve first in order to determine by electro-diagnosis whether the case is one for operation.

So long ago as February, 1915, Dejerine[2] enunciated the proposition that the electrical reaction of the muscles supplied by a wounded nerve are not in themselves a guide as to the nature of the lesion, nor are they a measure of its severity. This striking example of Dejerine's acumen and prescience has since received abundant confirmation among military neurologists on the Continent, and it has gained a measure of support from Captain Adrian, R.A.M.C.[3] In explanation of Dejerine's somewhat paradoxical contention I may point out first that the muscles supplied by nerves which are the subject of perineural or neuritic irritation sometimes show marked atrophy and reaction of degeneration even when they have not quite lost the power of voluntary contraction. Secondly, nerves which have been severely contused or compressed but which have no anatomical solution of continuity may show reaction of degeneration. Erb long ago called attention to the "paradoxical reaction" in musculo-spiral compression in which it is impossible to stimulate the nerve with faradism above the lesion, although the muscles retain their faradic response to ordinary currents. In the third place, the reaction of degeneration does not always follow the section of a nerve. Recently I have obtained a well-marked faradic response with a Gaiffe's chariot and trembler (fine wire, large model) in two cases in which the nerve was completely divided. The first case came from Tooting Military Hospital, with a note that "at a recent operation the musculo-spiral nerve was found to be completely divided in the arm," and yet both the extensors of the wrist responded well to faradism, and all the extensors gave a brisk galvanic response. In the other case I had myself seen an inch completely resected from the ulnar nerve two weeks previously, and yet all the interossei stood out well on faradic stimulation. Electrical tests are of great assistance in arriving at a complete conclusion when taken in conjunction with other methods of examination, but they should not be regarded as final, and it is important that the other methods of diagnosing the interruption of a nerve should have their true value recognized.

Of these the most important is what Tinel calls *le signe du fourmillement*, which may be translated as "distal tingling on percussion" (and abbreviated as D.T.P.). This sign depends on the fact that when young axis cylinders are percussed there is a sensation of tingling in the cutaneous area corresponding to the ultimate distribution of the axis cylinders. Thus if the musculo-spiral nerve is cut across in the arm and the proximal end is percussed no tingling will be felt by the patient. The lower segment of the nerve then degenerates, and a very short portion of the upper segment of the nerve, as well as the muscles, tendons, skin, etc., supplied by that nerve exclusively, become insensitive. After a time regeneration commences at the lower end of the proximal segment, and new axis cylinders grow down to and beyond the point of section. In from four to six weeks there will be bundles of new axis cylinders at this point, and if they are firmly tapped with the forefinger the patient will experience a sensation of tingling or "pins and needles" in the skin over the dorsum of the first and second metacarpals. When tingling in the hand follows tapping on the arm this indicates not—as I have heard suggested—continuity of the neurone between the arm and the hand but between the arm and the brain. If the new axis cylinders are arrested or twisted back to form a neuroma by a fibrosis or keloid mass at the end of the lower segment, or if they cannot reach the latter owing to extensive destruction, the portion of nerve from which D.T.P. can be elicited is never longer than 2 or 3 cm., and is situated at the site of the lesion. That is what is commonly found in interruption by neuroma or section.

If, however, the new axis cylinders succeed in growing down the trunk, or if the latter has only been contused and has preserved its anatomical continuity, then *pari passu* with the growth of the cylinders there occurs a downward extension of the D.T.P. In young healthy subjects this growth takes place at the rate of 1 or 2 mm. a day, and in cases which are regenerating the growth of the new cylinders may be regularly followed down the limb by this simple test. It will be found further that when the new axis cylinders have completely developed their function, the D.T.P. disappears. This usually occurs in about 100 days, so that when the cylinders have travelled about 10 cm. down the nerve trunk the site of the lesion is beginning to lose its D.T.P. In another 100 days the first 10 cm. of the nerve below the lesion will not show D.T.P. while the next 10 cm. will do so. Thus in nerves which are regenerating one will always find an area some 10 cm. long where D.T.P. can be elicited, and this area travels gradually down the nerve until it reaches the lower end and finally disappears. In a sciatic lesion, for example, from a wound in the buttock, where regeneration is taking place, at the end of twelve months there will still be paralysis, atrophy, and reaction of degeneration in the leg muscles. But if an area of D.T.P. some 10 cm. long is found about the level of the popliteal space, a good prognosis can be given and a needless operation avoided. As this sign always precedes the return of muscular tonus, voluntary movement and normal electrical reactions by a considerable interval it will be seen to be an indication of great value after operation for nerve graft or suture. In Tinel's service at Le Mans it is constantly used and has amply proved its worth.

Another example of the utility of this sign is afforded by cases in which a nerve lesion has occurred in a limb with multiple wounds. The site of the D.T.P. indicates which wound is responsible for the lesion. In lengthy wounds also it indicates the exact level of the nerve injury.

D.T.P. is also found in neuritic irritation, but in that case it can be elicited along the whole length of the irritated nerve, and, further, the percussion causes pain and tingling at the point percussed. This form of D.T.P. is therefore easily distinguished from that due to regeneration. A modified form of it is also found after recent injuries where a nerve has been concussed, contused, or compressed so as to cause paralysis without reaction of degeneration, or at least with only partial reaction of degeneration. When such a case is examined a month or so later it will be found that D.T.P. can be elicited over the greater part of the nerve, or at least for several inches below the lesion. When D.T.P. can be obtained early in the second month for more than 10 cm. below the lesion, then, without any electrical examination at all, one can affirm that complete recovery will take place in a few months.

In testing for D.T.P. there are one or two practical points to be observed. The first is that percussion must always be begun from the distal end and proceeded with slowly, as an unintelligent patient may have a persistent sensation of tingling once it has been obtained and so give fallacious responses. Secondly, too much shaking of the limb must be avoided, as in a sensitive patient the shock may set up tingling in an area other than the one percussed. Thirdly, care must be taken not to set up tingling in another nerve. Thus, with a complete ulnar and an incomplete median, the patient may answer for the median when the ulnar is percussed. In the leg also patients are

apt to confuse tingling in the sole and on the dorsum of the foot (internal and external popliteals). Another source of confusion is the downward growth of stray fibres while the bulk of the nerve remains interrupted. This error can be rectified by later examinations when the bulk of the D.T.P. is found to be at the site of the lesion, while that obtained lower down is indistinct and irregular. I must confess to several mistakes of this sort, which, however, were all rectified at subsequent examinations. Sometimes small bundles grow across the limb, or, in musculo-spiral wounds above the elbow, may even turn back and ascend over the outer head of the triceps. In such cases the bundles can be traced by testing for D.T.P. and are easily recognized as wandering fibres. In dissociated lesions where different portions of the nerve are wounded at different levels there is a real difficulty which cannot be overcome by any method of examination.

In elderly, alcoholic, or debilitated subjects nerve regeneration is very imperfect, or may altogether fail. In these cases D.T.P. does not occur, and its complete absence is usually a sign of grave prognostic import, but on the whole it is of more value as a positive than as a negative sign. The other signs of interruption of a nerve can only briefly be enumerated here. In addition to paralysis, reaction of degeneration and atrophy (which are not pathognomonic), may be mentioned insensibility of the nerve and its muscles, fixity of the area of anaesthesia or hypoaesthesia, delayed epithelial scaling, and loss of tonus as shown by altered position, as, for example, in the simian hand, dorsal tumour of the carpus and tarsus, dropped foot and dropped wrist. Incomplete dropped wrist is always a sign of an incomplete lesion (unless due to articular stiffness), but the converse is not true, as complete dropped wrist may be due either to organic or to functional hypotony.

Having carefully considered all these points, one is then in a position to reply to the important questions, Why and when should operation be advocated? On the Continent there is a growing tendency to restrict operation to those cases in which resection and suture are required. Delagenière,[4] whose results in nerve surgery are unsurpassed, writing of cases whose after-progress had been studied for two years and a half, states that 113 cases in which liberation of the nerve was practised did not on the whole seem to do any better than cases which were left alone. Falcone[5] states that after an early period of *entusiasmo interventivo* he came to the conclusion that it was better as a rule to postpone operation so as not to run the risk of cutting unaltered fibres and damaging those which were in process of regeneration. He considers that the most favourable time for intervention, based on a wide clinical experience, is the fifth or sixth month. Delagenière does not usually operate before the end of the third month. These opinions are borne out in our experience in the Neurological Service, N.Z.E.F., Brockenhurst, where a number of cases showing reaction of degeneration have begun to recover in the fourth month and have made very rapid progress thereafter. Of Delagenière's cases, 245 were sutures, 181 of them being practised in favourable conditions with 120 excellent results, 41 moderate successes, and 20 failures. Of 9 grafts from the musculo-cutaneous, 3 were almost complete successes.

With regard to cases in which pain is a prominent feature, as in causalgia, early operation is advisable, and may take the form of arterial decortication (Leriche),[6] catgut ligature of the nerve above the lesion (Lortat-Jacob and Hallez),[7] distal section and immediate suture of the nerve (Tinel and Delagenière), or injection into the nerve of 65 per cent. alcohol (Sicard).[8] Leriche's operation is extensive and tedious, but sometimes gives good results. In the Neurological Service, N.Z.E.F., we have always succeeded with alcohol injections. Sicard recommends 60 per cent. alcohol (not alcohol at 60° C., as it is usually translated), but the experience of Lieut.-Colonel Acland and Major Stout of the N.Z.M.C. has shown that 65 per cent. alcohol is more effective in calming the pain and does not paralyse the motor fibres. Tinel claims that section and immediate suture of the nerve at the wrist or ankle is always successful, but I have seen it fail in one case, as also, in another, the distal injection of alcohol. In a recent very acute case of musculo-spiral causalgia, which is a rare condition, proximal injection of alcohol was immediately successful.

It would be unwise to expect the patient aloofness of Falcone to find many emulators in England, where, even in orthopaedic hospitals, healed nerve injuries are admitted directly into the surgical, and not, as in France, into the medical, service, but it is not too much to ask that the surgeon shall hold his hand for some months when there is voluntary contraction in some of the muscles or even when there is faradic response. In these cases operation is not justifiable, and in many others an unnecessary or harmful operation would be avoided by the intelligent use of Tinel's sign.

REFERENCES.

[1] *Presse Médicale*, 1915. [2] Ibid. [3] *Journal of the R.A.M.C.*, July, 1917. [4] Société de Chirurgie, Paris, March 6th, 1918. [5] *Riforma Medica*, February 23rd, 1918. [6] *Presse Médicale*, September 10th, 1917. [7] *Bull. Soc. Méd. des Hôpitaux*, March 8th, 1918. [8] *Presse Médicale*, June 1st, 1916.

A SPORADIC CASE OF POLIOENCEPHALITIS.

BY

J. N. MARSHALL, M.D.,

ROTHESAY, BUTE.

A CASE presenting many of the features described as botulism or polioencephalitis has occurred in Rothesay, Isle of Bute, and seems worth recording.

The disease, which occurred in a girl aged 8, ran a course of about three weeks and ended in recovery; the beginning and the end of the illness were both rather abrupt.

The most marked symptoms throughout were bilateral ptosis with nystagmus and profound stupor, amounting at one time almost to coma. The clinical picture presented a marked contrast to that of meningitis. Instead of irritability, restlessness, and mental aberration, there was comparative placidity throughout, and when it was possible to rouse her the intellect seemed clear.

The girl belonged to a good working class family. The home conditions were good, and there was no history of eating sausages or tinned meat of any description, nor had she been from home for some months before her illness.

While at school on May 24th she complained of headache and of not seeing well, and was found bathing her head with cold water.

Two days later I saw her and found V.A. for left eye $\frac{6}{12}$ and for right $\frac{6}{9}$. Her sight had been examined in school a short time before and found perfect. She looked dull and tired and complained of headache. There was no vomiting either then or later.

On May 28th I found her in bed and stuporose, with marked bilateral ptosis. There was also nystagmus and slight internal strabismus of left eye; this last-mentioned symptom did not persist long. The pupils were slightly dilated and sluggish to light. She was easily roused and answered questions intelligently and did not complain of headache or of pain anywhere. Kernig's sign was present, but not in a marked degree. The patellar tendon reflexes were exaggerated, and there were occasional startings involving the whole body. Later on involuntary contractions of muscle could be produced by suddenly grasping any of the limbs. There was delirium during sleep with clawing of the bed and clutching of the hands. The temperature was 100°; the pulse 84 and regular; the respirations 22.

During the next week the condition became much worse. Stupor was profound, though some response could still be obtained when she was asked to put out her tongue. She did not speak nor answer questions. The temperature ranged from 101° to 102° and the pulse from 114 to 128. Retention of urine necessitated the use of the catheter twice a day. The urine was natural and free from albumin. There was considerable difficulty in swallowing, but by persistently feeding with a spoon small quantities of milk were got down. The tongue was at first rather furred and the breath foul, but with regular cleansing of the mouth this condition improved. By the end of the second week the child was almost comatose and no response could be obtained. There was great emaciation. At this time, however, the temperature began to fall, and at the beginning of the third week was below normal. In the middle of the third week she quite suddenly began to cry with pain in the head and back of the neck, and there was retraction of the head. The pain was so severe that omnopon was given on two occasions, and sleep thus obtained. Involuntary contraction of the upper labial muscles caused an intermittent appearance of risus sardonicus.

At the end of the third week she began to yawn, to move her arms, and to speak. The ptosis disappeared, and from this time on improvement was rapid. At first she spoke in a shrill, unmodulated voice, calling persistently "Mammy" for hours on end, though when spoken to sharply she stopped and answered questions. The urine was now passed naturally and the bowels moved spontaneously. The appetite became voracious, and in another week the child seemed practically well. There seemed

to be no impairment of the senses or of the intellect, but there was great muscular weakness and some tremor when the arms were used.

Practically all the treatment in the case consisted of careful nursing, feeding, and catheterization, all carried out very efficiently by the Queen's nurse of the district.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PRIMARY SUTURE OF GUNSHOT WOUNDS.

MUCH has recently been written on primary suture of wounds, carried out so successfully by our French *confrères* and by British surgeons at certain casualty clearing stations in France.

Ample statistics prove unquestionably that the number of successful results varies inversely as the delay between the receipt of the wound and the time when the "toilet" operation is carried out. Many observers question the advisability of primary suture if an interval of more than twenty-four hours has elapsed. My own experience, at a base hospital in France, hardly bears this out, for I have found that even as late as thirty-six or forty-eight hours after infliction a considerable number of wounds may safely be subjected to primary suture; hence it appears to be not unreasonable to suggest that a hide-bound time limit should not become established.

Since the commencement of the German offensive a large number of cases have come through to the base unoperated upon. Many of these wounds have been attacked with a similar, though perhaps more thorough, excision procedure than I was accustomed to carry out at a casualty clearing station; wherever possible, without damaging important structures, the *en bloc* method has been adopted. In a large majority of cases the results have justified the step, and in only a small minority has it been necessary to remove stitches to allow escape of discharges.

In not a single case has gas gangrene occurred, or has there been cause for alarm owing to general or local inflammatory complications. In some cases, even where a shell fragment was surrounded by pus, lodged at the end of a dirty wound track, and although the skin around already exhibited some inflammatory changes (redness and oedema), primary suture has succeeded, and the surrounding inflammation has subsided in a remarkable way.

The importance of most careful selection of the type of case warranting primary suture cannot be over-emphasized, and only a very considerable experience of the clinical phenomena and operative technique of excision of war wounds justifies this procedure.

At the base hospitals forced evacuation is unusual, and cases can therefore generally be kept under closest observation until the danger period is passed. This being so, no great harm has been done should the primary suture be unsuccessful; if it succeeds, weeks of painful dressing may be saved, and a speedier return to the fighting line expected.

A point I have not seen mentioned, but one to my mind of great practical importance, is the direction the missile takes in the muscle it penetrates. Where the track is in the line of the muscle fibres a clean excision can be guaranteed, and all necrotic tissue easily removed. On the other hand, if the track is at right angles to the direction of the fibres, especially those of thick long-fibred muscles such as the hamstrings, septic material will be carried far away from the line of the track as the cut fibres retract. Primary suture in the latter type of case is dangerous, and would most probably be followed by far-reaching burrowing spread of sepsis. The former type of wound lends itself well to primary suture.

For a very considerable time it has been customary to perform primary suture on penetrating joint cases at the base, and I have now before me notes on 22 such cases recently operated on by me. In this series (mostly knees) healing by first intention took place in 19, while 3 were unsuccessful. In 11 of the cases there was damage to bone.

My object is to advocate the consideration of primary suture of selected wounds, even though the cleansing operation has not been done until as late as thirty-six to forty-eight hours after the receipt of the wound. If the effort is doomed to failure little harm will be done provided the surgeon in charge of the case is fully alive to the possibilities of non-success, and loses no time in removing stitches. To my mind it is safer in these late cases to use an antiseptic. For this reason, after having procured absolute haemostasis, I swab the whole surface of the apparently healthy tissue left after wound excision with mercury biniodide in spirit (1 in 1,000), mop up excess with a dry swab, and then lightly bipp the surfaces. I use no buried sutures, and generally leave in a rubber tissue drain for twenty-four hours.

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DOUBLE RUPTURE OF THE URETHRA DUE TO GUNSHOT INJURY.

PRIVATE A. McM. was admitted into a casualty clearing station on February 22nd, 1918, with a machine-gun bullet wound of the right buttock. The wound of exit was situated in the left inguinal region, and the left spermatic cord was completely divided; the left testicle had been blown out of its bed and was hanging from the wound by the loose tissue of the scrotal tunics. The relative position of the wounds of entry and exit and the bruising of the perineum and the region of the symphysis pubis at once suggested the possibility of damage to the urethra. The patient had not passed urine since the receipt of the wound some four and a half hours previously; an attempt to pass a catheter into the bladder failed and provoked haemorrhage from the urethra.

The patient was placed in the lithotomy position and an incision made in the perineum; the right pubic and ischial rami bounding the pelvic outlet on that side were found to be severely comminuted, and a number of loose fragments of bone were removed. The triangular ligament on the right side was disorganized and the fibres of the right levator ani and the right side of the prostate gland were visible in the depth of the wound. The extravasated blood was washed and sponged away, and two complete ruptures of the urethra were found; the more anterior was situated near the lower border of the symphysis, where the corpus spongiosum merged into the bulb, the more posterior about an inch further back near the junction of the prostatic and membranous portions of the urethra. Suprapubic cystotomy was performed and two end-to-end unions of the urethra made over a catheter introduced through the external urinary meatus into the bladder. The fascia of Colles was brought together by catgut and a glove drain introduced into the perineal pouch. The skin was then sutured and a drain left in the bladder.

The patient was placed on internal urinary antiseptic medication, and all went well for three days; but the temperature rose, and, in spite of the removal of the catheter, still remained high. An anaesthetic was administered and the wound examined; this was found to have "fouled"; the edges of the anterior rupture had again separated, but the posterior junction was still holding. Two Carrel's tubes were introduced into the right side of the cave of Retzius from above and two from below, and Carrel's treatment vigorously instituted.

The case is incomplete, as my inquiries have failed to obtain any account of the patient after he was prematurely evacuated from the clearing station, but his general condition a week after the injury, before he was sent to the base, did not suggest the prospect of a fatal termination. Doubtless, protracted treatment must have been in store for him at the hands of those entrusted with his subsequent surgical care.

The position of the anterior wound in relation to the wound of entry and exit pointed to its direct causation by the missile, but the mechanism of the production of the posterior rupture is less clear; most probably it was due to a spicule of bone which had transfixed the tube, but which was not evident at the time of operation, or the rupture of this posterior and more fixed portion of the urethra may have been in some way connected with its attachment to the triangular ligament, which was destroyed by the missile in its flight.

Double rupture of the urethra must be a very rare gunshot injury, and still more rare as an injury under

peace conditions; the case therefore seems worthy of record as a contribution, imperfect though it may be, to the surgery of the male urethra.

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TUBAL TWIN PREGNANCY.

I HAVE read with interest the description of the case of tubal twin pregnancy narrated by Mr. Gordon Taylor in the JOURNAL of June 29th.

There is in the museum of the Royal College of Surgeons of England a specimen of tubal twin pregnancy which I removed some years ago and presented to the College. In this specimen there are two fetuses occupying the same amniotic sac, and attached by separate umbilical cords to the placenta. In other words, it is an example of uniovular tubal twin pregnancy. Binovular tubal twin pregnancy also occurs, and examples are recorded.

It is not clear from the description of Mr. Taylor's specimen whether the place of insertion of the umbilical cords had been noted; in other words, whether his specimen is uniovular or binovular. The latter would appear to be the more common.

May I add that triplets have also been observed in the tube.

London, W. F. J. MCCANN.

Reviews.

MEDICINE AT THE FRONT.

THE little book, *Medical Service at the Front*,[1] is written by two officers of the Canadian Army Medical Corps, Lieut.-Colonel J. MCCOMBE and Captain A. F. MENZIES. It is designed to reveal the procedure by which the sick and wounded are cared for in the battle area. The book has the flavour of the field. It is redolent of blood and sweat, petrol, horses, and the mephitic atmosphere of the underground. It is done with much skill, and its impression is made by close attention to the smallest details, by which a vivid picture is created.

The book contains an opening word by Surgeon-General J. T. FOTHERINGHAM, the initials of whose name, it may be noted, are incorrectly given. "Gentle reader," he begins with grave courtesy, "for this great war makes most participants who survive it gentle, and particularly those engaged in repairing its ravages in the bodies and minds of its victims." His single page is written with the feeling which comes to one who has seen with his eyes and handled with his hands the things of which he writes. One may well ask why it is that a like gentleness has not been instilled into the hearts of the enemy. Their condemnation lies in that.

War is so new a thing to this generation that the authors have found it necessary to describe the military formations by which the business of war is carried on, and even a civilian reader would derive profit from the precise account which is given. Correspondents at the front would do well to descend occasionally from their high ecstasy, and give some solidity to their writing by a like description of the background to the daily life of the army.

But in this book there is more than description. There is a consideration of various methods which may be employed for effecting a given purpose, and reasons are assigned for following one course or the other. Shall there be a divisional or corps advanced dressing station? Shall the stretcher-bearers proceed by continuous carry or by relay? Shall a regimental medical officer remain in his dressing station during an advance or go over with the troops? To what extent shall surgery be carried in the aid posts? These are a few of the many similar problems that are considered. The answer invariably depends upon circumstances against which no forethought can completely provide, and the action taken in any given case must depend upon the quality of the personnel. One medical officer with a genius for his work will save lives by extensive surgical procedure in his aid post. Another will serve best by contenting himself with much less interference. The lesson is that intelligence cannot be replaced by machinery, and that experience is worse than useless if it dulls the mind to a perception of the factor which is new. What a man did at Ypres with success may be a failure on the Somme. In the early years of the war the practice in the Boer war was remembered with complacent satisfaction, and probably in South Africa there were men who relied fondly upon an experience acquired in the Crimea or the Indian Mutiny.

This book concerns itself for the main part with divisional arrangements, but as the army has begun to think in terms of corps rather than of divisions, a chapter is added on the medical service in the corps, and also a chapter upon casualty clearing stations which are traditionally on the lines of communication. Although the methods described and the illustrations given are drawn from the Canadian Corps, they apply also to the English army, as the practice is identical. Indeed, for many years the C.A.M.C. has modelled itself on the R.A.M.C. To the newer armies, especially to the American, the book will prove a trustworthy guide.

[1] *Medical Service at the Front.* By Lieut.-Colonel John McCombe, C.A.M.C., and Captain A. F. Menzies, M.C., C.A.M.C. Philadelphia and New York: Lea and Febiger. 1918. (4½ × 5¾, pp. 128; 24 figures. 1.25 dols.)

DISEASES OF THE STOMACH, INTESTINES, AND PANCREAS.

THE third edition of Professor KEMP'S *Diseases of the Stomach and Intestines*[2] contains a section of a hundred pages on diseases of the pancreas, and is a bulky volume weighing five and a half pounds. The diseases of the liver might just as appropriately have been added, but this would necessarily have further increased the size, and rendered it even more unwieldy. The work is encyclopaedic in its way, and mentions an enormous number of diseases, giving accounts of typhoid and paratyphoid fever, of Brill's disease, and of obesity, which perhaps hardly come within the scope of the subject matter. It of course conveys a great deal of information, and the author's indebtedness to other writers is freely acknowledged. It is intended for the general practitioner who is unable "to take a clinical course in gastro-enterology," and on this account there are numerous illustrations, especially of *x*-ray results and of gastro-intestinal lavage, for example, of the author's well-known recurrent rectal irrigators. Among the sixteen figures illustrating gastric lavage there are two impressive pictures of a patient undergoing lavage through the nostril at the hands of four nurses, two being detailed to control the arms and legs, while the other two look after the tube and the fluid. There is an up-to-date account of Sir Arbuthnot Lane's views on intestinal stasis, with which the author is not entirely in accord, for during his fourteen years' service as enterologist to the Manhattan State Hospital for the Insane, with its 4,600 beds, he has never heard of suicide from this cause, and he does not advocate Lane's radical procedures except in rare instances of progressive obturation or of cancer. In the section on infections by the colon bacillus the author states that he has not been successful in the treatment of bacilluria by alkalis, and has obtained his best results with sodium benzoate and hexamine. The work is painstaking, and though not attractive must in fairness be admitted to be a source of reference on the subjects treated.

[2] *Diseases of the Stomach, Intestines, and Pancreas.* By Robert Coleman Kemp, M.D., Professor of Gastro-Intestinal Diseases at the Fordham University Medical School. Third edition. Philadelphia and London: W. B. Saunders Co. 1917. (Roy. 8vo, pp. 1096; 438 figures. 30s. net.)

SANATORIUM LIFE FROM BEHIND THE SCENES.

UNDER the military title of *The Battle with Tuberculosis, and How to Win It*,[3] Dr. MCDOUGAL KING, of Denver, Colorado, has set forth his experiences as a patient at sanatoriums and health resorts for the guidance of fellow sufferers undergoing similar courses of treatment.

Throughout the work he makes use of the military metaphor, the enemy being represented by the germ. In turn he shows how the outposts of ordinary precaution too often fail to check the advance, and how the lines of communication, represented by the lymphatic channels, are invaded until the first resistance is met with in the lymphatic glands. The means whereby the home forces may be strengthened, and further advance checked, are

[3] *The Battle with Tuberculosis, and How to Win It.* A book for the Patient and his Friends. By D. McDougal King, M.B. Philadelphia and London: J. B. Lippincott Co. 1917. (Cr. 8vo, pp. 258. 6s. net.)

followed out with much ingenuity. Attention to detail is as essential in the conflict with the pathological as with the human enemy, and personal experience has proved that disaster is apt to follow any neglect of simple precaution in dealing with so insidious a foe as tuberculosis.

The inner life of the institutions which profess to apply and even to enforce the rules of strict hygiene is only known to those who take personal part in it, and a large proportion of such persons neither know nor understand the reasons underlying the instructions that they are bidden to obey. Perusal of Dr. King's book will enlighten everyone who may be willing to learn. All the essential points are set forth in plain terms, albeit in military guise. Addressed not only to patients, but also to patients' friends, the work contains some wholesome cautions against the acceptance of well-meant but ignorant advice. Incidentally much light is thrown upon the hidden defects and irregularities of sanatorium life in general.

AMPUTATION STUMPS.

CAPTAIN MARTIN HUGGINS has written an excellent little book on *Amputation Stumps: their Care and After-treatment*,[4] based on a very large experience gained at the Pavilion Hospital, Brighton, where he was surgical specialist for thirteen months, and on a familiarity with the fitting of artificial limbs acquired by frequent visits to Queen Mary's Hospital at Roehampton. There was great need of such a concise guide not only to the treatment of faulty and painful stumps, but also to the selection of the best methods of amputating in the casualty clearing station and the hospitals at the back of the front. We can cordially recommend the book to all surgeons who have to perform primary amputations, or to improve the results of such amputations later on. In particular we would direct attention to the advice given as to very short thigh stumps and disarticulation at the hip, and as to Syme's amputation. Captain Huggins truly says that a Syme's stump which is not entirely end-bearing—and, unfortunately, a good many reach the fitting hospitals which are not—is inferior for functional purposes to an amputation through the leg. After discussing the surgeon's responsibilities in respect to the site and mode of amputation, the author in each instance deals with the type of artificial limb that can best be applied. The illustrations are excellent and much enhance the value of the book, which we hope will soon be found in the possession of every operating military surgeon.

SWINE FEVER.

IN a further contribution to the pathology and epidemiology of swine fever, containing observations on epidemics in 1916 and elaborate bacteriological investigations, Dr. J. P. MCGOWAN[5] brings out some new points which have an important bearing on the prevention of the disease. The causal organism, the *Bacillus suisepticus*, is a Gram-negative cocco-bacillus, pleomorphic and polar staining. It forms small dewdrop colonies, rapidly dying out even if frequently subcultured at short intervals, and giving a different type of growth at different times on different samples of agar, possibly in response to a slight variation in reaction. The classical type of *B. suipestifer* and the distemper bacillus were each found in two cases only. Pathologically the disease is a haemorrhagic septicaemia, and the haemorrhages in all parts of the body give rise to the various lesions, especially the necrotic "button ulcers" in the colon regarded as characteristic of swine fever, and responsible for the diarrhoea so frequent in suckling pigs, which is really a latent manifestation of the disease, though escaping recognition as the animals are spoken of as "wasters" or "piners." As the pigs get older acute pneumonia and pericarditis occur. These have previously been regarded as accidents due to secondary infection, but Dr. McGowan has found the *B. suisepticus* present in pure culture and other bacterial causes of pneumonia absent. In older pigs the lung lesions gradually resolve. Swine fever is thus more or less endemic in a latent form whenever numbers of pigs are kept together, and is lighted up by unfavourable conditions so that fatal cases occur, and the existence of the disease then becomes obvious. It is therefore important to recognize the latent and hitherto overlooked manifestations of swine fever, to look after the affected pigs, and to protect them from injurious conditions such as sudden exposure to extreme cold, especially when associated with rain or snow. Protective vaccination exerted a very unfavourable influence on pigs between two and four months old, and it is a question whether those over four months would not have done much better without it. The younger pigs may have had too large a dose, and others may have been unrecognized subjects of swine fever and so unduly sensitive. It appears certain to Dr. McGowan that an epidemic was due to the administration of vaccine to pigs with latent and unrecognized swine fever, as the first demonstrable cases occurred after the second administration of the vaccine.

[4] *Amputation Stumps: Their Care and After-treatment.* By G. Martin Huggins, F.R.C.S., Medical Officer to the Government Schools, Salisbury, Rhodesia, etc. London: Henry Frowde, and Hodder and Stoughton. 1918. (Fcap. 8vo, pp. xv + 223; 95 figures. 7s. 6d. net.)

[5] *A Further Contribution to the Pathology and Epidemiology of Swine Fever.* By J. P. McGowan, M.A., M.D., M.R.C.P.E. Edinburgh and East of Scotland College of Agriculture. (Pp. 74; 20 figures.)

NOTES ON BOOKS.

DR. E. L. ELIASON'S *First Aid in Emergencies*[6] appears to have been written for persons in out-of-the-way places who may be called upon to do the best they can in a serious emergency. We are led to this conclusion by the introduction of articles on the treatment of fractures of the thigh and of the leg, and on some other conditions which no wise person would attempt to treat if skilled medical advice were available. The book has reached a second edition, which is evidence that it has met a want. It has a good index and a thumb-nail index.

Since its first appearance, rather over ten years ago, Dr. HARVEY W. WILEY'S book on *Foods and their Adulteration*[7] has been recognized as a useful work of reference. A third edition has now been issued, but the author in his preface admits that much has been discovered during the last six or seven years which would have made it desirable to rewrite the text; this he has not been able to undertake, but he has sought to embody the main conclusions that have been accepted. The book is very comprehensive and differs from others on the same subject by the amount of space given to what may be called the mechanical details of the growth and collection of foods and their preparation for the market and the table. The illustrations are very numerous and, on the whole, helpful.

[6] *First Aid in Emergencies.* By E. L. Eliason, A.B., M.D. Second edition, enlarged. Philadelphia and London: J. B. Lippincott Co. (Fcap. 8vo, pp. xi + 233. 6s. net.)

[7] *Foods and their Adulteration.* By Harvey W. Wiley, M.D., Ph.D. Third edition. London: J. and A. Churchill. (Medium 8vo, pp. xiv + 646; 11 coloured plates and 87 other illustrations. 24s.)

MEDICAL AND SURGICAL APPLIANCES.

Amputation Shield Retractor.

MR. VALENTINE H. BLAKE, M.B., B.S.Lond., has devised an amputation shield retractor which consists of two dished metal wings with a take-off joint swing over the stump flaps and locked by a ratchet into a firm circular shield on which traction is made by a pair of handles. He has used it for over a year and considers that it has the following advantages over other retractors: It is lighter than the average shield; it will go into the standard army sterilizer; there are no parts that offer difficulty in cleaning; it adjusts itself to the size of the bone and can be applied with the least amount of manipulation. The shield is made by Messrs. Down Bros., St. Thomas's Street, S.E.

As part of its child welfare scheme the Corporation of Edinburgh has recently established a country home for ailing city children at Gogarburn House, a short distance from the city; the house stands in about sixty acres of land; it cost £8,500, and the alterations fitted for its new purpose £1,500. It provides accommodation for 160 children, from infancy upwards, but at present only 100 will be admitted. At the formal opening on June 15th Councillor Young, convener of the Public Health Committee, paid a tribute to Dr. Maxwell Williamson, M.O.H., who had drafted a scheme which was so far the most complete in the United Kingdom; in addition to the sick children's hospital and the maternity hospital there were twelve centres for preventive and curative work. Nurseries have been established, and the playgrounds of the city are being utilized

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In 1918 will you leave your Belgian colleagues to starve?

Subscriptions may be sent to the Honorary Treasurer, Dr. H. A. DES VŒUX, 14, Buckingham Gate, London, S.W. 1.

In a letter which we printed last week, Sir Rickman Godlee asked our readers to come to the help of the Belgian doctors and pharmacists in Belgium, who are in urgent need of relief. In order to clear up certain misconceptions which we believe have stood in the way of the second appeal, we may tell very briefly the history of the Belgian Doctors' and Pharmacists' Relief Fund.

The Fund was started at the close of 1914, and the liberal response to the first appeal by the Executive Committee was adequate to the needs of that time. Nearly £20,000 was raised before the end of 1916. This sum was contributed almost entirely by members of the medical and pharmaceutical professions, and included generous donations from the Dominions and India, and from the United States. At first some money was spent in relieving immediate distress among the Belgian doctors and pharmacists who were refugees in this country, and in putting them in the way of making a fresh start in life. These needs were met without difficulty, and for a long while the assistance to the refugees over here has been a trivial charge upon the Fund. The real work of the Fund has been on behalf of the Belgian doctors and pharmacists remaining in Belgium and trying to carry on their work under the brutal heel of German military occupation. This does not appear to be generally understood. Indeed, there would seem to be a mistaken idea among some medical men that the Relief Fund is being frittered away in doles to refugees in this country. The facts are very different.

In 1916 the Committee of the Fund learnt from Mr. Herbert Hoover—at that time Director of the Commission for Relief in Belgium—that it would be possible to supply the Belgian doctors and pharmacists remaining in their own country with material assistance in money and drugs, and he undertook that any subsidies entrusted to him should be forwarded to safe hands for wise and proper distribution. Accordingly the Committee began to send every month £800 to a representative committee of Belgian doctors and pharmacists sitting in Brussels. This went on until the close of 1917, but in January last the monthly remittances had to be reduced to £400, with every prospect of a standstill at an early date. Just at the time when the Fund was compelled to halve its monthly remittance news came from the Commission for Relief in Belgium through Mr. W. B. Poland, who had succeeded Mr. Hoover, that the need for money and moral support had become even more acute than before. "If the supporters of your Fund knew how much actual suffering they had allayed, and how much potential moral and physical suffering they had prevented, they would not cease to continue their support, many as are the claims now made upon them."

A second appeal was made to enable the work of the Fund to be continued, but the result has been disappointing. Individual support has been prompt and generous, but there has been no general response, and the executive committee of the Fund finds itself to-day just about where it was at the beginning of the year before the second appeal was issued. There is enough money to pay one more monthly sum of £400; after that the subsidies must cease unless further help is forthcoming on a large scale. Sir Rickman Godlee, as chairman of the Fund, put the gist of the matter last week in two sentences: "Do British doctors and pharmacists really know (1) that money is urgently needed, (2) that it goes to Belgium, and not to doctors and pharmacists in this country, and (3) that it really reaches the Belgians and is not pocketed by the Germans? If they did they would surely never allow these remittances to be stopped."

It is a commonplace that no time could be less propitious than the present for any kind of charitable appeal, however worthy of support. Nevertheless, it must be looked upon as a debt of honour to continue regular and substantial aid to our unfortunate colleagues in Belgium. Therefore, together with the *Lancet* and the *Pharmaceutical Journal and Pharmacist*, we are this week supporting the appeal for the Belgian Doctors' and Pharmacists' Relief Fund with all the emphasis that springs from conviction.

British Medical Journal.

SATURDAY, JULY 6TH, 1918.

THE FUTURE OF THE INDIAN MEDICAL SERVICE.

THE Secretary of State for India gave a very sympathetic reception to the deputation which, on June 27th, laid before him the views of the British Medical Association on the present unhappy state of the Indian Medical Service. It was gratifying to find in Mr. Montagu a statesman who has a high appreciation of the benefits which medicine, both preventive and curative, can confer on the community, who understands the motives by which members of the profession are actuated, and fully recognizes the obligation on every modern Government to have always at its disposal expert advice on matters affecting the health and welfare of the peoples committed to its care.

The British Medical Association, which has long taken a deep interest in the progress of medical affairs in India, was, some five years ago, invited by the Secretary of State for India to assist him in ascertaining the causes of the very serious falling off in the number and quality of the candidates for positions in the Indian Medical Service. It has submitted several memorandums, and evidence was given four years ago on its behalf by Colonel Elliot, chairman of its Naval and Military Committee, before the Royal Commission on Public Services in India. In October last the Association asked the Secretary of State to receive a deputation; to this request he at once acceded, but, being then on the eve of his departure for India, decided to postpone its reception until his return. The delay has had this great advantage, that it has given Mr. Montagu the opportunity of seeing for himself the condition of affairs in India and discussing it with the Viceroy and the members of his Government. Mr. Montagu showed in his reply to the deputation that he had grasped the situation and fully understood the urgent need for reforms.

Mr. Montagu made it plain that he had carefully weighed the arguments advanced by the Association in the several memorandums it had presented to the Secretary of State, and had given very full consideration to the matter both during his recent visit to India and since his return. His considered opinion is that the Indian Medical Service is essential to India, and that the conditions under which it is recruited and works must be such as to enable it to attain the highest efficiency. He showed that he understood the conditions that must be fulfilled if the Service is to attract and retain the type of man that India needs, not only to take an important part in providing for the medical care of its peoples, but also for systematic scientific research into the many problems in epidemiology and pathology which still await solution in that country. No one who heard Mr. Montagu's speech or reads the verbatim report published in the SUPPLEMENT for this week can doubt the sincerity of his desire to have the co-operation of the medical profession, or of his wish to be guided by the expert advice tendered to him through the British Medical Association. Mr. Montagu spoke with much deliberation and in terms which had evidently been carefully chosen. His statements will be as carefully weighed, not only by the officers directly concerned, but by all within and without the profession in this country or in India who hold it the duty of the Government to maintain in India a service that shall be a competent exponent of the highest standard of Western medicine. Nothing less would be worth having.

We shall not attempt to follow Mr. Montagu through his long reasoned statement, but may briefly direct attention to the four main principles he laid down. The first was that it must be worth the while, professionally and scientifically, of a medical man to enter the Indian Medical Service and to remain in it. One deduction he made from this principle was that it would not be desirable to separate the military side of the Service from the civil, since in his opinion neither the one nor the other would alone fulfil the principle. Another deduction was with reference to private practice. He accepted the opinion of his legal advisers that there was no statutory right, but he went on to say that having considered the matter very carefully he was personally satisfied that as a practical matter of policy the present arrangement, giving, save in the case of certain special reserved appointments, freedom to practise privately within well-recognized and wide limits, was open to no serious objection, either from the point of view of the interests of the Service or from that of the peoples of India. To quote his own words, "I see, therefore, no reason for curtailing the present privileges of the Indian Medical Service in the matter of private practice, and many reasons against doing so." The second principle was that the remuneration offered should be adequate, and on this point he expressed his own opinion that the pay and emoluments are inadequate at present and need revision. War conditions, under which 339 officers have reverted from civil to military duties, had, he recognized, aggravated the discontent, for reasons which he mentioned; but he expressed the hope that so much of this discontent as was due to abnormal conditions had been mitigated by certain improvements in the military situation of I.M.S. officers. With regard to ordinary leave he was quite clear. The cadre, he said, must provide for an adequate leave reserve, because sufficient periodic holidays at home are necessary for Europeans serving in India. The third principle was that the Service must afford in its organization increased and increasing opportunities for Indians to enter. The fourth principle was that the minor causes of irritation, friction, and annoyance, should be done away with.

Taking up the point made by Sir Berkeley Moynihan, in a speech which admirably presented the aspirations of the service, Mr. Montagu said he had carefully discussed while in India the relations between the R.A.M.C. employed in India and the I.M.S., and that he agreed with prominent members of the I.M.S. and with the military authorities in India that prompt action was necessary; he added that he believed the Government of India realized the urgency of the case as fully as he did himself.

One of the points put by the Association in its memorandums, and by speakers at the deputation, dealt with the present unsatisfactory status of the chief medical advisers of governments. Mr. Montagu expressed his entire agreement with the principle that the Secretary of State, the Government of India, and the Local Governments should be in a position to obtain the best and most accessible advice available on the various medical and sanitary problems with

which a modern government is called upon to deal. As an example of what was needed he said that the Medical Adviser of the Secretary of State for India had recently been liberated from routine duties and had the powers and responsibilities the Association desired. The India Office at home having set this example, he was of opinion that the determination of the exact relations between the Government of India and the Local Governments and their respective medical advisers must be left to be worked out locally.

Both Sir Clifford Allbutt and Sir Berkeley Moynihan had laid stress on the importance of providing that officers of the I.M.S. should have study periods, which they urged should not be regarded as furlough nor allowed to count against ordinary leave, and also upon the importance of the organization of systematic research with rewards and recognition to those who engaged in it. Mr. Montagu on these points said that the Service already had an arrangement under which officers could obtain special leave to undertake courses of study, and that this leave carried allowances with it, was not debited against ordinary leave, and qualified for accelerated promotion. This arrangement, under which in the year before the war eighty officers went through these courses of study, had, he admitted, been suspended during the war, and we are bound to add that our information is that study leave was often very difficult to obtain before—a fact which affords additional reason for increasing the cadre of the service; such increase, in the opinion of the Association, should be not less than 25 per cent. With regard to research, Mr. Montagu referred to the Imperial Research Association established some seven years ago by the Government of India. It may be remembered that for this purpose a grant of 5 lakhs (£33,000) was made and that schemes of research were at once put in hand, though their full fruition has been arrested by the war. We may also recall the fact that in 1905 a sum of £5,000 a year was placed at the disposal of the Advisory Committee for Plague Investigation in India. Mr. Montagu said that he was himself in complete agreement with the deputation in thinking that opportunities for research and rewards for research formed an important part of the considerations necessary to ensure a good medical service in India.

The matter is advanced one stage by the speech, and a very important stage. Though nothing is settled, the Secretary of State probably went as far as the constitutional limitations of his office permitted. Disappointment will, we know, be caused by his inability to make any definite statement with regard to pay and emoluments. We are clear that if the second principle enunciated by Mr. Montagu is to be fulfilled the augmentation must be substantial. There are other matters upon which criticisms will be heard, but we are glad to recognize that Mr. Montagu expressed his own opinion frankly, and, though not in a position to put forward a settled policy, promised to send a full report of the proceedings of the deputation to the Government of India, and to use his influence to ensure that the reforms he agreed to be essential should be carried out. The final decision can only be reached in consultation with the Government of India. Mr. Montagu, however, said that his recent conversations with the Viceroy had shown that they were in complete accord on general principles, and that he awaited the proposals of the Government of India in an optimistic spirit. In any event, it is satisfactory to have a Secretary of State for India who has a mind open to modern ideas, and in sympathy with the progress of medical science.

Shortly it seems to come to this, that the Secretary of State and the Viceroy are agreed that it is necessary, in the interests of the indigenous population and also of the European community in India, that the Indian Medical Service should be continued on terms and conditions which will enable it to attain the high standard of the past, an aspiration not incompatible with the policy of affording Indian medical practitioners increased opportunities to enter it.

The policy to be pursued in respect of all public services in India must be governed by the terms of the pronouncement of August 20th, 1917. Mr. Montagu then said that "The policy of His Majesty's Government, with which the Government of India are in complete accord, is that of the increasing association of Indians in every branch of the administration, and the gradual development of self-governing institutions, with a view to the progressive realization of responsible government in India as an integral part of the British Empire." He said that it had been decided to take substantial steps in this direction as soon as possible, and added "that progress in this policy can only be achieved by successive stages." Any profitable discussion to-day must start from this, and we will observe only that there seems no reason for making a special case of the medical service, or choosing it as a particular subject for experiment.

PLAGUE IN SUFFOLK.

IT was stated last week that two cases of illness believed to be pneumonic plague, in one of which the diagnosis has been confirmed bacteriologically, had occurred at Erwarton, a small Suffolk village near the top of the peninsula formed by the confluence of the rivers Orwell and Stour, and on the bank of the latter river. The patients were two women living in a lonely pair of semi-detached cottages. The first patient died on June 13th and the other six days afterwards; the latter appears to have contracted the disease as the result of nursing her neighbour. No further cases have so far been reported, either among the inmates of the two cottages or among other persons in the neighbourhood. Active precautionary measures are being taken under the guidance of the medical department of the Local Government Board and the county medical officer of health. The interesting point about these fatal cases of plague is that they have occurred in the narrow strip of land in which four deaths from pneumonic plague occurred in the autumn of 1910. That outbreak was very fully investigated at the time by the late Dr. Bulstrode, and formed the subject of a special report.[1] The inquiries then made brought to light the possibility that two previous small outbreaks of illness in the same corner of East Suffolk were also plague. As the investigation proceeded it was found that rodents in that part of East Anglia—particularly rats—were widely infected with plague. Some months later a further case of plague occurred at Shotley, which is on the Orwell near its junction with the Stour, and therefore in the area within which plague-infected rats and other rodents were found. Energetic steps were taken to cope with the situation, with the result that for seven years nothing more was heard of plague in Suffolk, but it is significant that Erwarton is only about two miles from Shotley. Rat destruction was carried out very thoroughly in the infected area, accompanied by measures for preventing these pests from obtaining access to food supplies. Systematic examinations were made of rats derived from a belt of country surrounding the known infected area,

[1] Reports to the Local Government Board on Public Health and Medical Subjects. New Series (No. 52, 1911). BRITISH MEDICAL JOURNAL, August 26th, 1911, p. 448.

while the rat-fleas of the district were investigated by Drs. C. J. Martin and Sydney Rowland. The evidence as to the channels by which plague may have been introduced among the rodents in the neighbourhood of the rivers Stour and Orwell was very carefully sifted by Dr. Bulstrode, and it seemed probable that the source of the epizootic must have been infected rats imported with foreign grain coming from plague-infected countries. All the signs indicated that rat plague had been present for several years in Suffolk; yet during that time only three very limited outbreaks of human plague arose, thus confirming the view that for administrative purposes plague in this country may be regarded as a disease of rats which attacks man only incidentally and occasionally. If the fleas of infected rats are excluded from access to human beings, plague in man seldom occurs, the pneumonic form alone being directly infectious from patient to patient in the ordinary way. Nevertheless, since almost all human outbreaks of the present day are found on diligent inquiry to be preceded by an epizootic of plague amongst rats or other rodents in the neighbourhood, Dr. Bulstrode recommended that every sanitary authority should take steps to obtain the earliest intimation of unusual mortality amongst these creatures, and to send to the Local Government Board specimens of them for bacteriological examination. But, above all, persistent efforts should be made to destroy rats, and as this is most desirable from the economic as well as from the sanitary point of view, a leaflet[1] has been revised and reissued by the Board of Agriculture, giving simple and straightforward advice on preventive and remedial measures against rats. Since in pneumonic plague direct personal infection is known to occur, such outbreaks—of which the present seems to be an instance—should be dealt with by isolation of patients and destruction of infected material. Fortunately the *Bacillus pestis* does not live long outside the animal body, and with vigilance and prompt action there need be no apprehension of a serious outbreak, either now or in the future.

STATISTICS OF NOTIFIABLE DISEASES, 1917.

THE Local Government Board has issued the statistics of the incidence of notifiable infectious disease in England and Wales during 1917.[2] This is the seventh year for which such statistics have been published. Figures are given for each sanitary area in England and Wales, which may be useful locally, but the numbers are often very small, and those for administrative counties and county boroughs are of more value; the general summary for the whole country will, however, be sufficient for most purposes. The cases of measles and German measles, between which no distinction is made, numbered over half a million, and constituted a rate of 15.84 per 1,000 of population; but these returns are on a different footing from those of other infectious diseases, inasmuch as notifications by parents and guardians are included and are not distinguished from the notifications made by medical practitioners. There were 48,817 cases of scarlet fever, as compared with 75,722 in 1916, and 43,315 of diphtheria, as compared with 51,707 in 1916. The rate per 1,000 of population was, for scarlet fever 1.45, and for diphtheria 1.28. The contrast between the seasonal incidence is shown in a table, in which the rates are calculated in relation to the average weekly number of cases taken as 100. The highest number of cases of scarlet fever was notified from the middle of October to the middle of December; of diphtheria from the middle of November to the middle of December, but the great incidence of measles and German measles was from the beginning of March to the end of June. The number of cases of cerebro-spinal fever notified was 1,465, as compared with 1,306 in 1916, 2,566 in 1915, and 315 in 1914; the rate for 1917 was 0.04 per 1,000; the greatest incidence was in the first four months of the year, especially from the end of February to the middle of April. The number of cases of poliomyelitis notified was 357, giving a rate of 0.01 per 1,000; the greatest number of cases occurred from about the middle of July to the end of November. The number of cases of tuberculosis notified was 95,750, and in 22,096 the lesions were other than pulmonary. The statistics include a considerable number of duplicate notifications; the number varies greatly in different areas, but is particularly large in London. Nevertheless, there seems to be a remarkable decline in the rate for pulmonary tuberculosis in London; it was 7.39 in 1912 and 3.69 in 1917. In England, excluding London, the rate was 2.44 in 1912 and 2.01 in 1917. In Wales the rates were 2.01 and 1.57 respectively. For the whole country, including cases notified in port sanitary districts, the rate declined from 3.03 in 1912 to 2.18 in 1917. The rate, however, has been fairly steady since 1914, when it was 2.20. There is no distinct movement in the rates for tuberculosis of other organs than the lungs. In neither case is it clear what value should be attached to the slight variations noted. No cases of cholera occurred during 1917, and there were only four cases of typhus fever and seven of small-pox; eight cases of plague occurred in the port of London. The number of cases of ophthalmia neonatorum notified was 6,716, as compared with 7,613 in 1916, and 6,806 in 1915. The statistics so far quoted do not include cases of infectious diseases arising in barracks, camps, etc., in the occupation of the military forces; among them the cases of scarlet fever numbered 1,244, of diphtheria 1,296, enteric fever 177, erysipelas 442, and cerebro-spinal fever 1,023. The total number of cases of tuberculosis was 2,332, all save 122 pulmonary.

[1] Leaflet No. 244; to be obtained free of charge and post free from the Secretary, Board of Agriculture and Fisheries, 3, St. James's Square, London, S.W.1.

[2] H.M. Stationery Office. To be purchased through any bookseller. (Price 9d.)

THE REDUCING BODY IN THE CEREBRO-SPINAL FLUID.

THE presence of the normal reducing agent (glucose) in the cerebro-spinal fluid has been used as a means of distinguishing meningism from meningitis in which this body is diminished or absent. Weil[1] has investigated the glucose content of the cerebro-spinal fluid in various conditions. In irritation of the meninges and the resulting congestion the amount of glucose in the cerebro-spinal fluid is increased, and this holds good in meningism. But when the cause of the irritation is microbic, the fermentative action of the micro-organisms reduces the amount of the glucose; this is specially seen in meningococcic meningitis. In tuberculous meningitis diminution in glucose content is the rule; but in some instances the microbic activity is not sufficient to overbalance the influence of meningeal congestion, and at some stages of the disease the glucose content may be almost normal. In syphilitic meningitis the glucose content of the cerebro-spinal fluid is excessive, and in explanation it may be suggested either that the *Spirochaeta pallida* does not ferment the glucose or that the meningeal reactions of syphilitics are aseptic and secondary to infective processes in the medulla or brain. In the early stage of cerebro-spinal fever, when the fluid is clear and shows a number of mononuclear cells, there may be a preliminary excess of glucose; later this disappears, but as the patient recovers the glucose reappears in the cerebro-spinal fluid, increases, and during convalescence may, from the predominance of congestion over bacterial glycolysis, be in excess of the normal, as in the preliminary stage. In epilepsy an excess of glucose is the rule, but in hysterical seizures, however frequent and apparently serious, the glucose content of the cerebro-spinal fluid is always normal. In increased intracranial pressure the glucose content is raised, and probably

[1] M. P. Weil, *Compt. rend. Soc. de Biol.*, Paris, 1918, lxxxi, 436.

as the result of irritation of the floor of the fourth ventricle rather than of meningeal hyperaemia. In concussion Mestrezat, Bouttier, and Logre[2] describe a characteristic change in the cerebro-spinal fluid, which comes on in the course of two or three days and disappears after some weeks or months. This change consists in an excess of cerebro-spinal fluid, as shown by high pressure, and increased amount of sugar, associated with an excess of albumin and a smaller number of cells than normal. This characteristic change in the cerebro-spinal fluid, found in 80 per cent. of the 30 cases examined, is regarded as due to foci of destruction of nervous tissue, with an evidence of meningeal inflammation or infection. Thus there is no leucocytosis or fibrin, and the glucose content is not diminished.

MEDICINE AND GOVERNMENT.

THE Secretary of State for India, in the course of the remarkable speech he delivered to the deputation from the British Medical Association which waited upon him with reference to the present position of the Indian Medical Service, enunciated the doctrine that a modern government required, and should take all suitable means to obtain, the best and most accessible advice on the very various medical and sanitary problems with which every such government is called upon to deal. This doctrine has a general application, and its truth has been more or less fully accepted in this country, in France, in Germany, and in the United States of America. The special application with which Mr. Montagu was concerned was to the Secretary of State for India, the Government of India, and the Local Governments in that country. He was able to say that the India Office had already shown the way to the Government of India and the Local Governments. The duties of the medical personnel of the India Office were considered and more particularly defined by Mr. Austen Chamberlain. The policy has been continued by Mr. Montagu, and the medical adviser to the Secretary of State has been liberated from the routine duties of the presidency of the medical board, although he continues to act as an appeal board. He has been given the larger powers and responsibilities with which the Association desired to see him entrusted. The incumbent of this office, who is now Surgeon-General Sir Havelock Charles, G.C.V.O., is at the head of a distinct department of the India Office to which all proposals affecting medical and sanitary matters are referred for advice. No order, minute, or other document relating directly or indirectly to any medical or sanitary matter is now issued by the India Office until his observations thereon have been considered by the Secretary of State, to whom, as the head of a department, he has direct access. At present this is not the position of the medical advisers of the Government of India or of the Local Governments. The advice, comments, and recommendations of the Director-General of the Indian Medical Service must reach the Council of the Governor-General and the Viceroy through a member who has no expert acquaintance with medicine or sanitation. The position of the chief medical adviser of Local Governments is similar. Surgeon-General Benson, speaking at the deputation from his own personal experience as the chief medical adviser to the Government of Madras, said that that officer had no access to the members of Council or the Governor. All his proposals were dealt with by a junior civilian and afterwards handed over to a member of Council, who was not possessed of the technical and scientific knowledge required; consequently the proposals were very apt to be shelved without proper consideration and on insufficient grounds. This must be regarded as one of the reasons why the progress of preventive medicine has not been as rapid in India as the people of that country have a right to demand. It seems to be abundantly clear that the chief medical adviser to the Government of India should be at the head of a special department with the status of a secretary to the Government, and that in the Local Governments as well as in central government the chief medical adviser should be in a position to take a direct part in discussions preceding the decisions of the executive authority. To the Medical Adviser of the Secretary of State are now referred, we may add, all matters affecting the organization, personnel, recruitment and appointments of officers in the Indian Medical Service, and of persons in the nursing and sanitary services. He supervises the recruitment of the Indian Medical Service and is instructed to bring to the notice of the Secretary of State all questions connected therewith. His task in this last respect has been simplified for the moment by the representations made in his presence to the Secretary of State by the deputation, and while the war lasts the ordinary method of recruiting must be suspended. When normal times return the advice he will be able to give to the Secretary of State and to the medical profession and the heads of the medical schools must be determined by the action taken by the Government of India on the representations made to it—representations which we are glad to know have won the full and cordial approval of the Secretary of State.

[2] Mestrezat, Bouttier, et Logre. *Bull. Acad. de Méd.*, Paris, 1918, 3e sér., lxxix, 373-5.

EPSOM COLLEGE.

THE annual general meeting of Epsom College was held on June 28th, when the report was presented by Sir Henry Morris, treasurer, who was in the chair. It stated that the work of the School had been satisfactory in spite of numerous difficulties due to the war. The records of scholarships and other distinctions obtained by old boys were set out, and it was stated that over 700 old Epsomians are serving, of whom 600 had joined since the outbreak of war. In the roll of honour are included 75 who have been killed in action, 4 who have died in hospital, 7 accidentally killed, 10 who have died of wounds, 6 missing, and 5 prisoners; in addition, 120 have been wounded. The old Epsomians mentioned in dispatches numbered 58, one (Brigadier-General R. B. Bradford, since killed) was awarded the Victoria Cross, 7 have received the Distinguished Service Order, 2 with bars, one the Distinguished Service Cross, 47 the Military Cross, and one the Croix de Guerre. To commemorate those who have lost their lives in the war a war memorial fund has been established, which will be used to rebuild the nave of the chapel in harmony with the chancel, and to place in it a suitable monument. It was necessary to collect a sum of £4,500 in annual contributions in order to maintain at the School fifty necessitous sons of medical men and to provide pensions of £30 each for fifty-eight aged members or widows of members of the medical profession in reduced circumstances. The report contained a reference to the proposal which has been put forward for the adoption of some method of arbitration within the profession to which disputes between Epsom College and the Royal Medical Benevolent Fund as to testamentary benefactions could be referred for final decision. A discussion was raised on this point by Dr. Haslip, chairman of the Medical Insurance Agency, and after some remarks from the vice-chairman, Mr. Ernest Page, K.C., Sir Douglas Powell suggested the formation of a conciliation committee composed of a few members of the council of Epsom College and of the committee of the Royal Medical Benevolent Fund. The chairman said that if Sir Douglas Powell would move a resolution to that effect and it was carried by the annual general meeting, he was sure it would have the greatest influence in determining the council towards carrying out such an arrangement. Thereupon the following resolution was carried

unanimously: "That the Council be and is hereby requested and authorized to take such steps as they may think best calculated to avoid friction arising between them and the Royal Medical Benevolent Fund on any questions that may hereafter arise as to the title to funds in which either body may from time to time consider itself interested." The results of the election were reported to the meeting and will be found in our advertisement pages. The proceedings terminated with a vote of thanks to Sir Henry Morris for the great services rendered by him to the College as its treasurer.

THE ELSIE INGLIS CHAIR OF MEDICINE.

THE London Units of the Scottish Women's Hospitals, as we stated last week, are appealing for a fund to establish a Chair of Medicine in the University of Belgrade, after the war, as a memorial to Dr. Elsie Inglis, their late commanding medical officer. Dr. Inglis gave the last years of her life to Serbia, and worked with a courage which called forth the admiration of a race of soldiers, which counts personal bravery as the highest of human attributes: for Serbia she suffered with a devotion which has enshrined her in the hearts of a people sensitive to all beautiful and noble qualities. The welcome which the Serbian authorities are prepared to extend to the scheme will be particularly warm in view of the fact that the establishment of a Faculty of Medicine in the University of Belgrade is to be the first work of reconstruction undertaken after the war. It has long been felt that Serbian medical students should have facilities for studying at home instead of at foreign universities, and, since Vienna and Berlin were the schools of medicine most frequented by Serbians, the desirability for providing these facilities has become a vital necessity. In response to a graceful suggestion from the Serbian Minister, it is proposed that the Chair of Medicine at Belgrade shall be held by a woman. Contributions to the fund—which is being inaugurated this week at the Mansion House—should be sent to the Countess of Selborne, honorary treasurer, at 66, Victoria Street, S.W.1.

THE HALF-YEARLY INDEXES FOR 1918.

THE usual half-yearly indexes to the JOURNAL and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or both of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Acting Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C.2. Such copies will be dispatched shortly after the middle of July.

WE are asked to state that Sir Bertrand Dawson, finding it impossible to deal fully in the Cavendish Lecture before the West London Medico-Chirurgical Society with the subject of "the future of the medical profession," it has been arranged that he shall give a second lecture, dealing further with the same subject, at the Royal Society of Medicine on Thursday, July 11th, at 8.15 p.m. This second lecture will be followed by a discussion, and it is hoped that all interested will attend both lectures and take part in the discussion.

COLONEL WILLIAM HUNTER, C.B., M.D., president of the Advisory Committee for the Prevention of Epidemic Diseases in the Eastern War Areas, 1915–17, and in charge of the British Military Mission to Serbia, 1915, will give a lecture, illustrated by lantern slides, on the prevention and arrest of lice-borne diseases, at a meeting of the Royal Society of Medicine on Wednesday, July 17th, at 5.30 p.m. The lecture will deal with barrel disinfectors, railway van disinfectors, and van baths, devised and used by the British Sanitary Mission to Serbia in 1915. The nature and working capacity of the new methods will be described, as well as their application to the prevention of typhus, relapsing fever, and trench fever.

Medical Notes in Parliament.

National Service Medical Boards.

As a result of the debate on the vote for the Ministry of National Service, on June 27th, raising questions as to medical grading, an arrangement was made that those members of Parliament who are chairmen of appeal tribunals and two M.P.'s representative of the medical profession (Sir Watson Cheyne and Sir William Collins) should meet Sir Auckland Geddes in conference. The suggestion came from Sir Donald Maclean, and was welcomed by the Prime Minister on behalf of Sir Auckland Geddes, who had already spoken.

At the outset of the debate Sir Auckland took up matters raised in the discussion of the previous week. In the grading of men for the army there were two considerations—how fit a man was, and how the man possessing such fitness could best be employed in the army. Posting was a separate function. When the War Office was responsible for the medical examination an attempt was made to get the doctors working on the medical board to decide not only the medical problem, how fit a man was, but also the class of work a man was most suitable to do in the army. That meant that civilian medical practitioners were being asked to decide something which required military experience. When the examination was transferred to the civil department it was decided, after full consideration by the department, the Medical Advisory Board, and by a large number of competent civil consultants, that the furthest a medical board composed of civil medical practitioners should be expected to go was to say whether a man was fit for his age or not. The National Service Boards were, in fact, placing men in three grades for every year of the ages under consideration. There were now from the ages of 18 to 50 inclusive 33 ages, each with three departments, making 99 in all. The posting was now done as the result of consideration of grade and age. He admitted that the instruction quoted in the House in the previous week about the equivalent between the grades and the old categories was misleading, because there had been a change in the practical meaning of the term "category." The term "Category A" and so forth had been retained by the army, but a different meaning was now applied. If an army was to be maintained in the field there must be, at monthly intervals at least, consideration of the type of men coming forward, and the supply of men of any class or grade or age available, so that the best men available might be posted to that arm which required the best physique. The whole of the posting of the men was carried out under most careful supervision. When they passed from the control of the National Service Ministry to the War Office, to the Air Ministry, or to the Navy, they went to reception stations, and at the reception stations, in the case of the army, there was a posting board, consisting of a field officer who either had personal experience of the present war or full information as to how the men of various ages were standing it, a medical officer, and a posting officer with full information given him every month as to the requirements of each arm of the service and the classes of men who should be posted to each arm. Most of the members of the medical boards were civil practitioners, provided by the profession itself, through local medical organizations. They were not servants of the Ministry of National Service. The general directions with regard to the working of these boards were issued from the Ministry of National Service after consultation with the Medical Advisory Boards and, in cases touching certain physical disabilities, with recognized specialists. The responsibility for the instructions belonged, of course, to the Ministry of National Service. Once the instructions were issued, the whole of the medical boards were expected to conform to them. The medical boards had been working very well in the overwhelming majority of cases. The criticism about the grading of the older men that had been hurled at these boards had, in his opinion, been directed to the wrong place. It ought to have been directed against the Ministry. Practitioners had been accused of grading men without proper examination, and so on. That might have happened in the case of one or two boards, but certainly was not the case with regard to the vast majority. There were no fewer than 2,500 medical practitioners from civil practice, the very salt of the profession on the general practice side, working on these boards, and they did it, not because it paid them, but out of a spirit of patriotism. It had been said that a very large number of men of the new age were being taken for the army, and also that a disproportionately large number of them were being passed into the higher grades. The fact was that 11.2 per cent. of the men had been medically examined, and less than one-third of 1 per cent. had been posted. Where possible, the Ministry arranged for a second examination by a National Service Board if this was asked for—it was not possible in London for the moment, but it was done where there were enough medical men for the purpose. A man then had the

right to go to the Appeal Tribunal, and that tribunal had the right of saying whether he should be examined again, and if the man objected to going back to the National Service Board could send him to the assessors, who were under the control of the Local Government Board. That did not end the medical safeguards. If a man were posted, he had immediately another medical examination by the naval or military authorities, as the case might be. If he were young, he was simply marched past the doctors to see that he had no infectious disease, but with older men the medical eye was again passed over a man and his physical condition again assessed at the posting station. The medical officer at the reception (posting) station could not classify a man; he could not put a man up, but only send him back. In regard to the men in lower grades, if there was any question of their being graded high, they were sent to recruit distribution battalions, where they were kept under observation for a period. He believed that the minimum was two months before regrading could be effected. As for the complaint that the National Service Ministry were taking the older men and leaving the young, he said that for every man of the new age period taken so far approximately just under thirty young men had been called upon. It was because they were getting so short of younger men that men of the new age period were required for secondary and subsidiary services in the army. Sir Charles Hobhouse asked whether the safeguards enumerated by Sir Auckland Geddes were in practice observed. Sir Donald Maclean, after thanking Sir Auckland for what he had said in exoneration of tribunals, recalled the instruction M.N.S.R. 24 issued after the passing of the last Military Service Act, stating that men fulfilling the conditions of Grade I would also be fit for general service in the army. He then read the document issued on April 29th, which did not say anything about men of Grade I being fit for general service, but that "the physical training for the older men in this grade would be carried out under special medical supervision." He held that a change had been made in the physical standard for men examined after the Act was passed as compared with what it was when the bill was before Parliament.

Sir William Collins considered that an impossible task had been put upon the medical men. In the older ages there must be a larger proportion who, though they might be fit for their age, might not be fit for any military purpose. The instructions suggested that though boards were not free agents, the medical profession itself required no justification.

The Prime Minister believed that much of the trouble had been due to misunderstanding. The older men were under the impression that when they were graded as described they were to pass into the fighting line. That was not so. When 7 per cent. was spoken of it did not mean 7 per cent. for the fighting line. There was no intention of that kind. The use to be made of these men was rather in the services behind the line and in services in this country, but it did enable the military authorities to comb out men who would be fit to be put into the fighting line if there were other fit men to take their places behind the line. To that extent it was increasing the combatant strength of the army. To put men between 45 and 50 years of age to fight in the front trenches would be folly, and it was quite unnecessary. He welcomed the idea of a conference between chairmen of tribunals and the Minister for National Service. The vote would not be passed that evening and the subject could come up again.

Sir Watson Cheyne said he had received a number of letters from members of the medical profession, asking him to represent various points to Sir Auckland Geddes. The point every one made was, Is it really necessary that I should be conscripted? The writers had heard reports from medical men in the army that many of them were nearly idle; men who had left busy practices, and were of great use to the nation when at home, were sent to eat out their hearts because they had thrown away these practices and were doing no good to the nation. The delay in the publication of the report of the Commission that went to France was giving rise to a great deal of dissatisfaction. His correspondents suggested either that the report contained something which was bad for the public to know, or something which was bad for the army. He did not think that either of those observations was true. Another point was that doctors, certainly those over 50 years of age, strongly objected to anything like industrial conscription. They were filled with anxiety lest they should be asked to leave their practices and take up some other practice. At that age they were not in many cases physically strong enough to carry on a heavy practice in, say, a mining district. Some of his correspondents suggested that temporary employment in the R.A.M.C. should be offered to enable them to take military work abroad during the summer months, and return to work in the winter when they were more urgently required at home. That suggestion had already been made, and the army authorities in France seemed to think it might be accepted to a certain extent. Sir Watson went on to say that his own solution of the difficulty was that at the age named a man should not be asked to leave his practice, but that, as far as possible, he should be given part-time work in his immediate neighbourhood, so that he could give some hours a day to national work, and be allowed to carry on his own practice, which, after all, was a national work.

Mr. Albion Richardson payed a tribute to the doctors. On a visit to Conduit Street he had been struck with the consideration and courtesy shown. But the point was that the doctors were put under limitations which made a proper examination in the present circumstances impossible. That was in the matter of time. Further, he believed that in grading they acted under the spur of the Minister of National Service.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

CAPTAIN J. T. W. BOYD, C.A.M.C.

Captain James Tennant Whitworth Boyd, C.A.M.C., aged 27, whose death on June 16th from nephritis we announced last week, was born at Glenelg, Nova Scotia, the son of the Rev. Andrew Boyd of Port Arthur, Ontario, and graduated M.D., C.M. at the Queen's University, Kingston, in 1914. After serving for a year in the Kingston General Hospital, he enlisted in the C.A.M.C. and came overseas in February, 1916, being drafted to the No. 7 Canadian General Hospital (Queen's University Unit) at Étaples. He worked in the laboratory there until February, 1917, when ill health necessitated his return to England. During the past fifteen months he had been a member of the laboratory staff of the Kitchener Hospital.

CAPTAIN W. F. HALE, C.A.M.C.

Captain William Fraser Hale, C.A.M.C., whose death on service we recorded last week, was born at Springhill, Nova Scotia, on June 8th, 1876, the son of the Rev. Joseph Hale of Louisburgh, Nova Scotia. He graduated in medicine at Baltimore in 1902, and joined the C.A.M.C. in January, 1917, and subsequently served with a general hospital. He died as the result of accidental injuries.

Wounded.

Major R. H. Hodges, M.C., R.A.M.C.(S.R.).
Major A. E. P. McConnell, M.C., R.A.M.C.(T.F.).
Captain R. Craig, R.A.M.C. (temporary).
Captain J. W. Darling, M.C., R.A.M.C. (temporary).
Captain A. Malseed, M.C., R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Campbell, Kenneth Turner, Lieutenant Royal Air Force, only son of Lieut.-Colonel Spurgeon Campbell, C.A.M.C., of Winnipeg, killed in an air action on June 17th, aged 19. He joined in 1917, and had only recently gone to France.

Northcote, James FitzGaulfrid, Second Lieutenant West Yorkshire Regiment, younger son of Captain A. B. Northcote, R.A.M.C., of Monkgate, York, reported missing at Passchendaele on October 9th, 1917, now presumed killed on that date, aged 22. He was educated at St. Peter's School, York, joined the Inns of Court O.T.C. in 1915, got his commission in the West Yorks, and went to France in 1917. He was serving with a trench mortar battery when killed.

Nuttall, Eric J., Lieutenant Machine Gun Corps, attached West Yorkshire Regiment, son of Dr. Nuttall of Gainsborough, killed recently, aged 24. He enlisted early in the war.

Pockley, John Graham Antill, Lieutenant Australian Imperial Force, whose death in action on March 30th we announced in our issue of April 27th, was the third and youngest son of Dr. F. Antill Pockley, past president of the New South Wales Branch of the British Medical Association and president of the Australian Medical Congress in 1911. At first attached to the A.A.M.C., he enlisted as a private in a fighting unit, and soon obtained a commission. He was a fine athlete and horseman, and had passed at the head of the list in examinations in several branches of military service. He leaves a widow and an infant son. His elder brother, Captain B. C. Antill Pockley, who was the first member of the Australian Imperial Force to fall in this war, was killed in September, 1914, in the taking of German New Guinea.

Thomas, Francis Gerald, Mercantile Marine, fifth son of Dr. William Thomas, F.R.C.S., of Birmingham, killed on duty by his ship being torpedoed, June 8th, aged 37.

Wilson, Geoffrey, Lieutenant Royal Air Force, younger son of Dr. H. Wilson of Cheadle, Cheshire, killed May 15th, aged 23. He was farming in Saskatchewan when the war began, came home in October, 1914, and enlisted in the Army Service Corps, got a commission in that corps on December 28th, 1914, and after eighteen months' active service in France was transferred to the Royal Flying Corps.

With reference to the death of Edward Hughes Dodgson, younger son of the late Dr. Dodgson of Cockermouth, announced in our issue of June 1st, we are informed that he died of cerebro-spinal meningitis at a casualty clearing station in France, and not of wounds.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

England and Wales.

HOSPITAL FOR PENSIONERS AT BIRMINGHAM.

THE Ministry of Pensions, which realizes the necessity for providing beds for pensioners requiring medical or surgical treatment, has taken an important step in this direction at Birmingham. With the advice and assistance of Dr. Robertson, M.O.H., it has been arranged to use the Old Lodge Road Fever Hospital for this purpose. It will provide 200 beds with possibilities of extension. A resident medical officer has been appointed, and Dr. W. R. Jordan has accepted the post of consulting physician and Mr. Albert Lucas that of consulting surgeon. Miss Webb, matron of Cheltenham General Hospital, and late assistant matron of the General Hospital, Birmingham, has been appointed matron. It is expected that arrangements will be made with the civil hospitals to reserve beds for the treatment of severe cases and those calling for serious operation.

CLINIC FOR ORTHOPAEDICS AT LIVERPOOL.

The Local War Pensions Committee, in view of the number of men discharged from the services still requiring treatment, has prevailed upon the governing authority of the Royal Infirmary to open an orthopaedic department. On June 29th Colonel Sir Robert Jones inaugurated this new undertaking, which has been thoroughly equipped for the treatment of these cases. It is gratifying to record that the clinic has been started free of debt through the munificence of friends of the hospital. It was stated that between 3,000 and 4,000 men in Liverpool had been discharged on account of wounds received in action. Sir Robert Jones paid a tribute to Mr. Rushton Parker, who was the first to introduce the Thomas splint to any institution in Liverpool. It was only natural that Liverpool, where the famous surgeon, Hugh Owen Thomas, the inventor of the well-known appliances associated with his name, practised so successfully, should be a centre for orthopaedics. Every large hospital should possess such a department, for in this branch of remedial surgery the improvements were illimitable. Alluding to the value of the Thomas splint, Sir Robert Jones mentioned some forty cases of fractured femur in wounded soldiers treated in Thomas splints in which there was not half an inch of shortening. Mr. Thelwall Thomas, President of the Liverpool Medical Institution, in supporting a vote of thanks to Colonel Sir Robert Jones, paid a graceful tribute to the work the latter had been doing during the war and the signal services he had rendered in advancing our knowledge of orthopaedics.

Scotland.

BANGOUR MILITARY ORTHOPAEDIC HOSPITAL.

AN important addition to the installation for the orthopaedic treatment of wounded soldiers at the Edinburgh Military Hospital, Bangour, was, on June 24th, formally handed over by Lord Mackenzie, on behalf of the Edinburgh Red Cross Committee, to Colonel Keay, the officer commanding the hospital. Bangour, Lord Mackenzie said, was one of the three great orthopaedic centres of Scotland, the others being Bellahouston and Aberdeen. The Edinburgh Red Cross Committee had previously contributed £500 for the manual curative workshops; it had now provided £6,000 to erect and equip a building for hydrotherapy, massage, and electrical treatment on a large scale on a site granted by the Local District Board of Control. In accepting the gift Colonel Keay described the various kinds of baths and the treatment in use.

EPIDEMIC NERVOUS DISEASE IN GLASGOW.

Dr. A. K. Chalmers, M.O.H. Glasgow, and Drs. Picken and MacLean, members of the public health staff of the city, have made valuable contributions to the perplexing problems raised by the nervous disorder which has prevailed recently in various cities. The conclusions reached may be summarized as follows:

During May several incidents combined to direct attention to the occurrence of certain forms of illness associated in some instances with severe nervous symptoms and a high rate of mortality. These were isolated in their occurrence, but almost contemporaneous with certain other cases which were definitely grouped in places of employment and in residential institutions. Some of these were probably influenzal in character, while others assumed the clinical features of an outbreak at an industrial school in Glasgow in 1888, at an industrial school at Tranent in 1911, and at various times in industrial schools in England. It is believed to be the first occasion in which factories and works have been invaded. Coincident with these occurrences, the number of deaths registered in the first fortnight of May rose to 886, in place of 663 in the preceding fortnight, and the rate to 20, in place of 15 per 1,000. The largest increase in the grouped causes of death was ascribed to cerebral haemorrhage and respiratory disease, and the chief incidence was at ages under 25.

At this period cases believed to be due to botulism were reported in London, Sheffield, and other cities, and three cases admitted to the fever hospitals under other names (typhus and cerebro-spinal fever), together with one seen by Dr. Picken in consultation, presented some of the features elsewhere ascribed to this affection, but without any association with food as a likely explanation of the illness.

An inquiry into the isolated cases was conducted by Dr. Picken, and by Dr. MacLean into the grouped industrial and institutional cases. The latter mostly occurred in Lanarkshire, but had relationship with certain antecedent cases in Glasgow. In the inquiries beyond Glasgow Dr. MacLean was associated with the public health staff of the county. The evidence in both reports gave grounds for the opinion that at least two types of affection of the nervous system apart from influenza had occurred.

Isolated Cases.—In the cases investigated by Dr. Picken nervous symptoms were a predominant feature. Sometimes they took the form of rigidity of certain groups of muscles, chiefly of the arms or legs. In some the rigidity was followed by paralysis; in others paralysis occurred without any antecedent rigidity. In two cases the paralysis was facial, and produced the mask-like expression associated with botulism; in others the paralysis more obviously affected the limbs as in ordinary infantile paralysis. In a few the onset was sudden, but in the majority the symptoms developed gradually but rapidly. Altogether eleven cases in this group were recognized, and five died within five, six, eight, eleven, and twenty-four days respectively. Information received since the date of the report has added to the number.

Grouped Cases.—In Dr. MacLean's inquiry the majority of the cases occurred among groups of workers in industrial establishments. All these cases were of a mild type, characterized by sudden onset, severe headache, prostration, and rapid recovery, usually within two to four days. This group contained 420 persons, and the symptoms suggested influenza. But there were further groups occurring in institutions outwith Glasgow which receive inmates from a working boys' home, where 16 cases with symptoms similar to those of the factory workers occurred. The institutional cases, however, were not all equally mild, and 8 deaths are known to have occurred among them.

Symptoms and Pathology.—Excluding the influenza element, we would seem to have to deal with a form of affection which attacks the central nervous system, alternately the brain or cord, and falls within the group of affections for which the name "Heine-Medin" (a combination of the names of two observers of outbreaks in the last century) has been adopted. Of these, the form best known is where the cord is the chief seat of the disease (infantile paralysis or poliomyelitis), of which the outbreak in New York in 1916 is probably the most recent on a large scale. It is possible, as Dr. Picken has suggested, that the form simulating "botulism" is an aberrant form of this, chiefly affecting the brain. In any case it would appear to be an affection of the grey matter of the brain, as distinct from disease of the corresponding portion of the cord.

Prevention.—The precise methods of spread are somewhat obscure. The occurrence of isolated cases has suggested the agency of insects, and the stable-fly has come under suspicion. It would seem obvious that the best defence of the population against the spread of the disease lies in a rigid attention to the details of personal and domestic cleanliness, including vigorous action against vermin and insect pests of all sorts. The disease tends

to increase during warm weather, and court and stair cleansing and the frequent removal of stable litter should be rigorously enforced.

Notification.—In order also to bring the attendant conditions of each case under review, there would, Dr. Chalmers considers, be advantage in including both forms of the disease within the Notification Act. Poliomyelitis has been notifiable in England since 1912, but the resolution should include the aberrant brain form known as polioencephalitis or lethargic encephalitis.

Ireland.

REMUNERATION OF POOR LAW MEDICAL OFFICERS IN IRELAND.

AT the annual meeting of the Leinster Branch of the British Medical Association, held on June 24th at the Irish offices, 16, South Frederick Street, Dublin, Surgeon A. BLAYNEY in the chair, the following resolutions were passed and copies were ordered to be sent to the Local Government Board and the Press:

1. That the annual meeting of the Leinster Branch of the British Medical Association endorses the resolution passed at the recent meeting of delegates of the medical profession regarding the salaries of Poor Law medical officers—namely, in dispensary districts, an initial salary of £200 per annum, increasing to a maximum of £300 after fifteen years' service, with retrospective application in the case of existing officers.
2. That the meeting learned with much disappointment and regret the refusal of the Local Government Board to sanction the maximum salary of £300 which has been passed by certain boards of guardians for their Poor Law medical officers, and we strongly urge them to reconsider their decision, as we are of opinion a maximum salary of £300, after fifteen years' service, is very moderate, particularly as 50 per cent., and in many places over it, of the population in Ireland receive their treatment under the Medical Charities Acts.
3. That the meeting urges the Local Government Board, if it expects efficient treatment for those who receive medical attendance under the Medical Charities Acts, it must not only sanction adequate salaries when passed by boards of guardians, but it must exercise its right to fix such salaries where boards of guardians refuse them.

A resolution was also passed dealing with the retrospective payment of doctors attached to V.A.D. hospitals.

A deputation of Poor Law medical officers, accompanied by the Right Hon. M. F. Cox, M.D., and Dr. T. Hennessy, Irish Medical Secretary, waited recently on the Local Government Board regarding the refusal of this Board to sanction graded scales of salaries, on the ground of their being excessive, which have been passed by certain boards of guardians. The deputation gave a detailed account of the financial difficulties of Poor Law medical officers in discharging efficiently their duties owing to their totally inadequate salaries, even in peace times, and that since the outbreak of the war these difficulties have become impossibilities as the result of the enormous increase in the cost of living and travelling.

The Commissioners of the Local Government Board stated in reply to the deputation that they would give their representations very careful consideration and expressed their desire to remedy the grievances of Poor Law medical officers in every way possible.

Correspondence.

THE VALUE OF TUBERCULIN IN PULMONARY TUBERCULOSIS.

SIR,—Is it not time that a protest should be made against the abuse of tuberculin in the treatment of tuberculosis of the lungs?

The remedy—if such it can be called in this connexion—is less used than formerly, but it is to be feared that it is still employed much too extensively and that the results are in many cases injurious. The practice of sanatoriums varies. Some do not use it all; others use it very sparingly; others, again, use it more freely. I have seen no evidence to suggest that the results are better in the sanatoriums employing tuberculin than in those which dispense with it. I notice that recently some sanatoriums advertise: "Tuberculin used only in suitable cases." Are we to infer that it was formerly used in unsuitable cases, or only that the profession and the public are getting shy of the remedy?

Some advocates of tuberculin give it in such infinitesimal doses and so severely restrict its employment to favourable types of phthisis that their advocacy carries no conviction.

It is significant that there is no consensus of opinion either as regards the proper variety of tuberculin or the correct dosage. One foremost advocate of tuberculin—a foreigner—once informed me that he could get good results only with one particular brand of tuberculin. Another authority—also foreign, and equally eminent—once gave me his opinion that all brands of tuberculin were much alike, and that he had no preference. Why this discrepancy? Both the above authorities enjoy a world-wide reputation.

The question at issue is one of considerable practical importance, and an expression of opinion from those best qualified to speak would serve to guide the practice of the profession in this department.—I am, etc.,

Belfast, June 29th. JAMES ALEX. LINDSAY.

THE BURDEN OF COSTLY REMEDIES.

SIR,—In your editorial in last week's issue of the BRITISH MEDICAL JOURNAL, in the case of Dr. Fisher and the judgement given in his appeal by Dr. J. Smith Whitaker, the Medical Commissioner, I venture to think that you hardly do justice to the decision when you state that "from the technical point of view" it "may be correct." Surely it is not only technically, but absolutely, legally right and proper. However much we can all sympathize with Dr. Fisher, it must be acknowledged that the issues before the Commissioner were very simple. Was the antitoxin a drug or medicine within the terms of the Act? If it were, then Dr. Fisher had a contractual obligation to provide it, whatever the cost. If it were not, the Insurance Committee would have acted illegally if they had supplied it at the cost of their funds. The case will, I hope, prevent medical practitioners in future from entering into legal agreements and contracts the extent and bearing of which they do not estimate or understand. The only fault which can be attributed to the decision of the Commissioner lies in the length of the document and the mass of words, which obscure the issue. Time, energy, money, and paper might have been saved had it been very considerably curtailed, without any detriment to its force and legal effect.—I am, etc.,

London, W.C., July 1st. A. G. BATEMAN.

SIR,—The leading article in the issue of June 29th opens up a very unpleasant aspect of the Insurance Commissioners towards the insured. In the case of Dr. F. C. Fisher—I presume he appealed to the final Court of Insurance—the result to a man who does his duty is insult and injury. Insult, because such decision teems with the dictatorial and is only fitted for schoolboys, and let us remember that the decision is addressed to the whole profession.

I venture to say that this matter must be ended or mended. If the Insurance Commissioners are determined to stick to this decision, there can be only one interpretation—"that the insured is quite an unimportant person, and any treatment is good enough for him." There is only one thing that the profession can do—every doctor working a panel should send to the County Insurance Committee a slip that they decline to provide serums, antitoxins, or similar remedies for intramuscular or intrathecal injections; surely the profession can manage to be united on this. For all such remedies, when needed, they would apply to the Commissioners or to any authority they chose to appoint.

Failing such arrangement, then the patient must be told that the Commissioners have not arranged for the treatment by serums, etc., and they must pay for such, or enter an action against the Insurance Commissioners for insufficient treatment, if it so please them. I, as doctor, cannot afford to buy these necessary things on the capitation fee.

The profession would win all along the line, and,

backed by the British Medical Association, the point would soon be settled; one must remember this is not a fight for money—it is a fight for the sick and ignorant.—I am, etc.,

Bodicote, Banbury, July 2nd. F. B. JUDGE BALDWIN.

MILK SUBSTITUTES.

SIR,—I should be much obliged if you would correct the unfortunate omission of five words in my letter on liquid oatmeal as printed in the JOURNAL on June 29th. The passage should read:

Instructions.—Boil three ounces of fine oatmeal *in a pint of water* in a double saucepan for at least an hour. Then cool to 140° F., and stir in two or three teaspoonfuls of extract of malt, or of finely ground malt. The jelly-like mass will quickly change to a syrupy liquid. Let it remain for an hour at the same temperature. It is then ready for use and should measure one pint.

—I am, etc.,

Clifton, Bristol, June 30th. GEORGE PARKER.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examinations indicated:

SECOND M.B.—*Materia Medica and Pharmacology:* I. Harris, B. G. von B. Mellé, K. F. D. Waters.
Pathology.—B. G. von B. Mellé.
Forensic Medicine and Public Health.—E. H. Cluver, J. C. Dixey, S. C. Dyke, C. F. Krige, J. E. B. Morton, T. Patterson, W. V. Robinson, A. E. Thomas, K. F. D. Waters.
Medicine, Surgery, and Midwifery.—E. H. Cluver, S. C. Dyke, T. Patterson, W. V. Robinson, J. J. Savage, K. F. D. Waters, E. A. Woods.

UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—T. H. Almond, Sybil Bailey, Mary G. Cardwell, T. Colley, S. E. Critchley, F. L. Heap, J. Mills, Kathleen O'Donnell, Norah H. Schuster, L. J. Schwartz, V. T. Smith, F. L. Whincup.
Obstetrics: J. O'Grady, B. Walley.
Forensic Medicine and Toxicology: Nooman Abdoh, Mary E. Boullen, Elizabeth C. Davies, Kathleen Doyle, Georgiana M. Duthie, Olive M. Gimson, F. G. Hamnett, *A. Harris, S. Kelly, J. G. Nolan, J. O'Grady, Olga G. M. Payne, F. L. Pickett, E. Pigott, W. Reikan, A. El H. Sadek, Annie G. Thompson, Doris M. R. Tompkin, B. Walley, Ethel D. Willis, Ruth A. Wilson.

THIRD M.B., CH.B.—*Pharmacology, Therapeutics, and Hygiene:* S. Adler, May Ashburner, F. A. van Coller, Phyllis M. Congdon, J. W. Crawshaw, K. V. Deakin, A. M. El-Aguizy, F. R. Ferguson, Evelyn A. Garnett, J. Harris, G. E. Hayward, Sylvia K. Hickson, J. B. Higgins, F. S. Horrocks, Irma M. C. Jéhansart, F. C. Jones, Mary S. Jones, H. A. Lomax, *W. E. Mason, Doris B. Norman, E. R. Ormerod, Emily M. Peach, H. D. Preston, H. Rosenthal, G. Sheehan, Annie E. Somerford, G. Talbot, Doris A. Taylor, G. L. Taylor, H. W. Taylor, Mary I. Turner, R. Williamson.
Hygiene: Martha F. Barritt, Florence M. L. Graham, A. S. Leigh, Bertha Renshaw.

* Awarded distinction.

UNIVERSITY OF LEEDS.

AT the congregation on June 29th the following were among the degrees conferred:

M.D.—H. L. Flint, E. W. Reed.
M.B., CH.B.—G. R. Baxter (with second class honours), Jane Bamford, Marion Draper, R. Graham.

UNIVERSITY OF DURHAM.

THE following degrees were conferred at the convocation held on June 25th:

M.D. (*for Practitioners of Fifteen Years' Standing*).—K. C. Edwards, P. A. Storey.
M.B.—Dorothy E. Butcher, C. C. H. Cuff, W. A. Freedman, Mary K. Henegan, W. A. Hewitson, W. A. Jaques, B. Sergeant, W. E. M. Wardill.
B.S.—Dorothy E. Butcher, C. C. H. Cuff, Stephanie P. L. H. T. Daniel, W. A. Freedman, Mary K. Henegan, W. A. Hewitson, W. A. Jaques, B. Sergeant, W. E. M. Wardill.
B.HY. and D.P.H.—H. M. Leete.

The following candidates have been approved at the examination indicated:

THIRD M.B. (*Materia Medica, Pharmacology and Pharmacy, Public Health, Medical Jurisprudence, Pathology and Elementary Bacteriology*).—*A. G. Weston, *R. C. Brown, T. H. R. Anderson, P. C. Arnold, N. R. Beattie, S. W. Davidson, M. J. Erdberg, A. S. Graham, Mary L. Griffiths, Kate Gray, Dorothy Holmes, G. Hurrell, Edith C. M. Jones, M. A. R. Mansoor, T. N. V. Potts, May Raw, J. Silverston, H. R. Smith, J. Stonehouse, A. Woodman, Kathleen M. W. Watts.

* With second class honours.

UNIVERSITY OF GLASGOW.

Commemoration Ceremony.

A SERVICE in commemoration of past benefactors and of graduates and students who have fallen in the war, held in the Bute Hall of Glasgow University on June 26th, was attended by a large number of the general public. The Vice-Chancellor in the course of his address said: "As is fitting in this hour of the nation's trial, we lift our hearts in thankfulness for the courage and devotion of our graduates and students who have given their lives for the cause of right and freedom. The memory of their fortitude has become our glory, their high example our incentive to nobler endeavour in the time to come."

A graduation ceremony followed, when the following degrees were conferred:

M.D.—T. S. Macaulay (with distinction), T. Baxter.

The Bellahouston gold medal for eminent merit in thesis for the M.D. degree has been awarded to Dr. R. T. Leiper, D.Sc., and the Asher Asher gold medal for laryngology and rhinology to Mr. John Pollock.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

Surgery.—†G. H. Fitzgerald, †H. M. Waller.
Medicine.—*†W. E. P. Briggs, †N. Cheua, †D. A. Dyer, †G. H. Fitzgerald, *F. W. Kemp.
Forensic Medicine.—H. Carter, F. W. Kemp.
Midwifery.—W. E. P. Briggs, J. F. E. Burns, J. Gorsky, F. W. Kemp, E. H. Musgrove.

* Section I. † Section II.

The diploma of the Society has been granted to Messrs W. E. P. Briggs, D. A. Dyer, G. H. Fitzgerald, and H. M Waller.

Obituary.

IT is with great regret that we record the death, at the age of 66, of Dr. CHARLES PARKER, of Gosforth, Cumberland, on June 22nd, after a painful illness of three months. Dr. Parker was born at Chatham in 1851, was educated at Ipswich Grammar School and Wellington College, and matriculated at Edinburgh University in 1869, where he graduated M.B. and C.M. in 1873. He took the M.D. and F.R C.S.Edin. in 1884. After visiting the principal medical schools of London, Paris, and Vienna, he settled in practice in Dumfriesshire in 1875. In 1876 he married the eldest daughter of Dr. John Smith, dental surgeon to the Edinburgh Royal Infirmary. In 1877 he moved to Gosforth, where he speedily obtained an extensive practice. His scant leisure was devoted to antiquarian research, and he soon became the authority on the antiquities of the district, and was in 1885 elected a Fellow of the Scottish Antiquarian Society. He was for many years a member of the council of the Cumberland and Westmorland Antiquarian Society and contributed many papers to its *Transactions*, the latest in the volume just published being in collaboration with Mr. W. G. Collingwood, F.S.A., on the ancient Runic Cross in Gosforth Churchyard. He also published essays on the Runic Crosses of Gosforth; the Ancient Crosses of Gosforth, Cumberland (1896); the Gosforth District (1904); and Shelagh, Olaf Cuaran's Daughter (1909). He took an active part in the public work of the district, being especially interested in the church and the schools, and in 1883 was appointed J.P. for the county of Cumberland. The Chairman of the Whitehaven Justices at their first meeting after his death paid a warm tribute to his memory, stating that "he was highly respected wherever he was known, that he was the friend of every one, the enemy of none." He leaves behind him a widow, one daughter, and three sons. The daughter's husband is a lieutenant on active service, his eldest son served through the East African campaign, the second son is a Commander R.N., and the youngest is a captain in the R.A.M.C. serving in France.

THE United States Secretary for War has authorized Surgeon-General Gorgas to establish an army school of nursing for the training of women for service in military hospitals.

THE National League for Health, Maternity, and Child Welfare, 4, Tavistock Square, W.C.1, has prepared leaflets and posters dealing with the dangers due to body vermin, and setting forth the best practical methods for counteracting them. Specimen copies will be forwarded on application to the secretary. The leaflet entitled "How to prevent the spread of epidemics by insects in war time" has been approved by the trustees of the Natural History Museum.

Medical News.

THE Royal Medical Benevolent Fund Guild among its many useful activities undertakes the training of girls to be self-supporting or to assist their mothers. The committee is very anxious that efforts in this direction should not slacken; but the Training Fund is in debt, and in the hope of putting it in funds again a garden party is to be held at the Royal Botanic Gardens, Regent's Park, on the afternoon of Tuesday, July 16th, at which a number of well-known artists will appear. Tickets of admission can be obtained through the usual agents, and from a number of ladies interested in the fund.

Sir Frederick Taylor and Sir Alfred Pearce Gould have been appointed to serve on the Officers' Pensions Appeal Tribunal.

Brevet Colonel R. Heard, I.M.S., has been appointed an Honorary Surgeon to His Excellency the Viceroy of India.

Major John Orton, R.A.M.C.T., and Dr. H. J. Thornton have been appointed justices of the peace for the city of Coventry and the county of Middlesex respectively.

THE annual meeting of the Medico-Psychological Association of Great Britain and Ireland will take place in Edinburgh on July 23rd and 24th, under the presidency of Lieut.-Colonel John Keay, R.A.M.C.

THE degree of M.D. (*honoris causâ*) has been conferred by the National University of Ireland upon Colonel R. J. Blackham, C.M.G., C.I.E., D.S.O., who is now serving as D.D.M.S. of an army corps in France.

THE New York Chapter of Hadassah, the Women's Zionistic organization, is forming a medical unit for Palestine. It will consist of fifty-one doctors and nurses, and will be a foundation for a large and permanent system of medical relief work which will be conducted on a basis of assistance to all in need of it, irrespective of race or religion.

A STEADY rise in the frequency of strangulated hernia and intestinal obstruction in Germany is attributed to food shortage. In a hospital in Lübeck there were only 11 such cases in 1913 and 1914. In 1915 they rose to 34, and in 1916 to 45. In the first seven months of 1917 they totalled 50. The causes of this abrupt rise are thought to be loss of subcutaneous and mesenteric fat and, in the case of volvulus, the abnormal distension of the gut by vegetable foods.

THE close medical supervision of workers in munition factories has had the very satisfactory result that the cases of T.N.T. poisoning, which numbered 169 from October, 1916, to March, 1917, fell to forty-two in the corresponding six months of 1917–18. Factory medical officers have now been authorized to permit continuous employment of persons upon T.N.T. work, which will have the effect of halving the number of workers coming into actual contact with this explosive.

THE Germans in continuation of their policy of ruthlessness have torpedoed the *Llandovery Castle*, a hospital ship in the service of the Canadian Government. The ship being homeward bound from Canada had no sick or wounded on board; she had a crew of 164 officers and men, 80 members of the Canadian Army Medical Corps, and 14 nursing sisters. Of this total only 24 in a single boat have been saved. The usual excuses that the boat carried combatant units and munitions are being made by the Germans, but, as is absolutely clear, without any particle of justification.

THE Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W.1, announces that men discharged from the navy or army on account of wounds, disease, or other disablement contracted during naval or military service, may enter for the institute's course of lectures and examinations at half fees, provided that their disability is not such as to prevent them carrying out the duties of the office to which the examination applies. Sailors' or soldiers' widows whose husbands have been killed or have died during the present war, and wives whose husbands have been permanently disabled during the present war, are admitted to the courses of lectures and examinations at two-thirds of the ordinary fees.

THE annual meeting of the British Orthopaedic Association will be held on Friday, July 26th, and Saturday, July 27th, at the rooms of the Medical Society of London, 11, Chandos Street, W.1. On the morning of the first day the President of the Association, Mr. E. Muirhead Little, F.R.C.S., will deliver an address; this will be followed by a discussion on the indications, technique, and end results of tendon transplantation in gunshot injuries of nerves, to be opened by Captain T. P. McMurray, R.A.M.C., of Liverpool. On the second day Mr. D. M. Aitken, F.R.C.S., will open a discussion on the Abbott treatment of scoliosis. The programme on both days will include short communications from other members of the association.

A REVIEW of the housing question as it is likely to present itself at the close of the war, drawn up by a special panel of the Reconstruction Committee appointed by that Ministry, has been issued. It has long been known to every one who gave any attention to the subject that the condition as to rural housing is most unsatisfactory and that it is one of the factors which have driven men from the land in the past. But it is something to have it now officially stated that if this country is to be self-supporting in the matter of food, and approach that condition, there must be a very considerable increase in the number of men working on the land. As to the number of houses that will eventually be required the report does not go further than to register its opinion that the lowest number of houses which should have been built this year, had the war ended last year, was 300,000. It advises that the state should provide the cost of the building, and should own the houses for a period of, say, five years after the war, at the end of which time prices might be expected to have attained a normal level. During this transitional period it is proposed that the local authority should act as agent of the state, and that at the end of the period the ownership of the houses should be transferred to them at a price to be settled. The estimate for the provision of 300,000 houses is £100,000,000, of which the state would have eventually to find one-quarter.

Letters, Notes, and Answers.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Articulate, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Referees' Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS NOTES, ETC.

THE "MEDICAL DIRECTORY."

THE Editors of the *Medical Directory* inform us that the annual circular has been sent to every member of the profession, and that prompt return of the circular will help them considerably. If any practitioner who has not received a copy will communicate with them at 7, Great Marlborough Street, London, W.1, a duplicate will be forwarded.

WHITE FLOUR.

A CORRESPONDENT in Northumberland sends us as a curiosity the following letter he recently received from a panel patient whom he has been attending for the past twenty-two months:

"I have decided to have another doctor. With your medical attention I find no fault, but I am not satisfied that you did all you might have done in assisting me in my effort to obtain white flour, therefore I have concluded that there is no other course open to me but to get some one who will help me in such matters as this."

THE appointment of certifying factory surgeon for East Nottingham is vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.